Social Responsibility vs Following a Trend

Are corporations actually walking the walk? Or just talking the talk?

"Today's consumers are not always buying the green claims made by hotels. It is imperative that hotels go the extra mile in integrating environmentally friendly practices to develop credibility in consumers' minds."

- Christina Geng-qing Chi, Researcher.

Research has shown that consumers today are more attuned to corporates social responsibility. But are corporations using that information to their advantage and wrapping their image to seem more responsible in order to draw in perspective customers?

"Greenwashing", for example, is a term to describe a practice by companies that espouse environmental-friendly policies but don't actually follow them. However, consumers are becoming increasingly cynical about corporations that bolt to the front of every trendy cause.

Businesses may simply be adapting to the new way some consumers are making choices. In the past, it was enough for a product to taste better, be more convenient and of higher quality, or cost less. Increasingly, consumers want the products they buy to reflect their personal values.

Source: Consumer Affairs

http://www.consumeraffairs.com/news/consumers-getting-more-skeptical-of-social-responsibility-claims-100215.html

The Positive Social Media

New data suggests social media brings out the best in us, after all

"*Our results confirm the so-called positivity bias. That is, that humans on the long run tend to favor positive content, good news*,"

- Emilio Ferrera, an Indiana University professor and one of the study's two authors.

Research has shown that constantly being bombarded with news articles, gossip, advice, daily musings and life events often makes us feel terrible. But a new computational social science study says the positive emotions associated with social media generally outweigh the negative ones.

The study, published in Peer J Computer Science journal, examined the content and proliferation of more than 19 million English-language tweets from September 2014. It found that negative content spread faster than positive content—but positive content was shared more and ultimately reached a larger audience.

Their findings: Social media users like to spread happiness and excitement much more than pessimism or dejection. (A 2014 study of Facebook posts also found that happiness is the most "contagious" online emotion.)"

http://qz.com/515114/new-data-suggests-social-media-brings-out-the-best-in-us-after-all/

Source: Quartz

Outsourcing & Off-Shoring

Should we stop worrying about outsourcing and off-shoring?

Labor markets have for the past quarter century been at the center of the globalization disputes under the "off-shoring and out-sourcing" rubric. But the rapidly changing nature of the global economy has changed much, though not all, of that debate.

In addition to dramatic economic growth in emerging markets, four recent trends have significantly modified the old off-shoring and out-sourcing schematic:

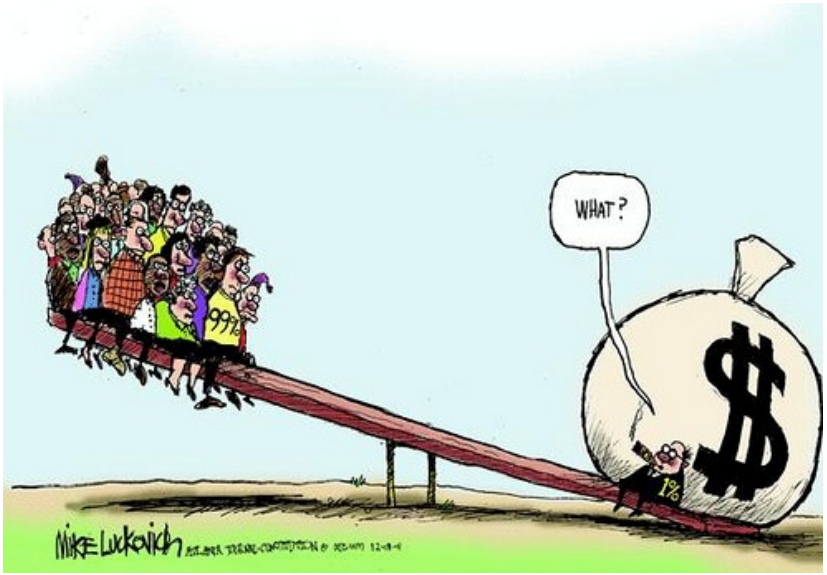
1. First, labor costs for many businesses may no longer be the critical or even primary factor in global location decisions. Wages are rising in many emerging markets due, in part, to increased demand, new labor laws, and greater worker voice. New technology, such as robotics, and higher productivity have also lowered the price of labor as a percentage of total product or service costs. When labor cost differences are not as dramatic or important, other costs like materials, energy, transportation, currency, capital, government imposed costs (tariffs, regulation) -- which were always important -- may have as great (or greater) impact on the location as cheap workers.
2. Companies are retaining but modifying their global supply chains by selectively reversing the long-term trend of outsourcing. They are "making" important parts of the products or services rather than "buying" from third parties.
3. The "de-verticalizing" outsourcing process - when a company sent many of its functions between raw materials and the finished product to third parties - is now being partially reversed with "re-verticalization." - bringing them back in-house, with corporate units integrated across the world under global/local management.
4. There is a growing movement among major, developed world companies to engage in responsible off-shoring and out-sourcing by adopting labor and quality standards which aim to create decent wages, working conditions and environmental protections as well as more rigorous quality checks.

Source: The Atlantic

http://www.theatlantic.com/business/archive/2013/03/why-we-can-all-stop-worrying-about-offshoring-and-outsourcing/274388/

More Education = Less Income Inequality?

Can a higher education chip away at income disparities?



"Increasing education isn't going to do anything to bring down the wages of the real top—or address rising inequality focused on the 1 percent—but it is what's needed to increase the position of those at the bottom. Those are two different problems."

- Melissa Kearney

Source: The Atlantic

A recent study by Melissa Kearney, Brad Hershbein and Lawrence Summers at the Brookings Institution suggests that improving education does in fact help the economic situations of poorer Americans, even though it does little to whittle away at overall inequality in the country.

The study simulated what would happen to earnings and inequality if 10 percent of non-college educated, working-age men ages 25 to 64 were to obtain a bachelor's degree. The report found that awarding a bachelor's degree to one in 10 men between the ages of 25 through 64, who did not previously have one, would in fact increase their likelihood of being employed and boost their earnings. The increase in education resulted in significant changes for those at bottom half of the earnings spectrum, with inequality relative to those who fall into the 25th percentile of earners dropping by about one-third.

But it did not significantly change overall earnings inequality. That's because improved prospects for low and median earners doesn't erase the existence of runaway income growth for the very wealthiest.

According to Kearney, the conclusion is that for less-skilled workers and those who earn a lower wage, additional education can have the effect of reducing income inequality. However, looking at education in limited terms can be problematic. "We didn't want to cede the view that when people say we need more education that necessarily means a four-year bachelor's degree," she says. Greater availability of apprenticeships or job-training programs could also help enhance labor market outcomes for those who find themselves on the lower rungs of the skills and wage scale.

http://www.theatlantic.com/business/archive/2015/04/what-education-can-and-cant-do-for-economic-inequality/389754/

Designing with Big Data

How will big data change design research?

In our field of designing products and experiences, the 'why' stays at the center of our process and creativity.

While Big Data can inform designers on how to improve once they put something out there, it is design research that provides principled guidance towards good solutions all along the way.

Source: Artefact Group

Big Data is the growing availability of information from multiple sources that can be used to get insights and make decisions.

Evaluating & Adapting: We now have the ability to choose between alternatives by testing with sample users. Initially, A/B testing allowed for the more successful of two options to become the chosen design. However, we've surpassed that today and are now able to use multivariate testing - by using shifting set of elements that are iteratively selected and expanded, every visitor gets a slightly different version of the site and the site improves by selecting the elements leading to the best behaviors.

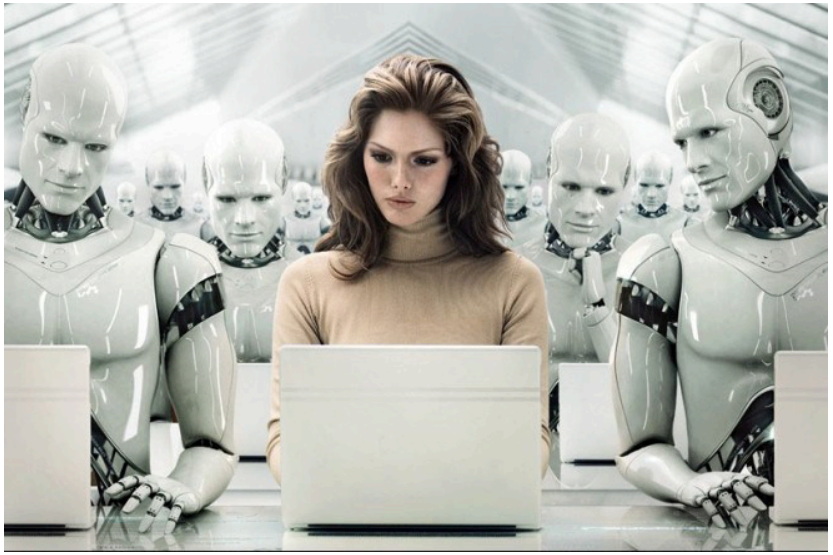
Evaluation to Prediction: The true promise of Big Data is as a powerful predictor. Companies are just starting to get a handle on how data can be aggregated across people to predict events and behaviors in their lives. In the digital world, Netflix and Pandora are examples of how Big Data can be applied to predict what type of movie or music you would like.

Design Research vs 'Experience Actuary': If data can predict consumer preferences and behaviour, what effect does this have in the long run? Will design researchers be replaced by data tables and "experience actuaries" that tell us what to build, for whom, and what it should be like? Maybe not. As Big Data continues to grow and become more complex, finding out *why* there is a correlation between behaviors, preferences, or events could be even more challenging. We cannot understand the deeper purpose of consumer preferences/behaviour with Big Data alone.

https://www.artefactgroup.com/content/how-will-big-data-change-design-research/

The Future of Automation

Will we be able to live off of the production of robots?



"Five hundred years from now, less than 10% of people on the planet will be doing paid work…"

- Steve Jurvetson

Steve Jurvetson spoke to Business Reports senior editor Nanette Byrnes about why he thinks 90 percent of people will be unemployed in 500 years:

Are today's new digital technologies destroying or creating jobs? I absolutely believe in the near to medium term there is going to be net job creation, as there always has been. Think of all the Uber jobs. The opportunity is not yet fully tapped to, in a sense, distribute [over the Internet] the service economy. The service economy is bigger than the goods economy, so the online equivalent should be even bigger and more powerful than the online marketplace for physical goods.

Everything about Uber has been automated except for the driver. The billing, the fetching—every part of it is a modern, information-centric company. Interestingly, what that means is as soon as automated vehicles arrive, that driver is easily removed. You don't have to restructure any part of that business.

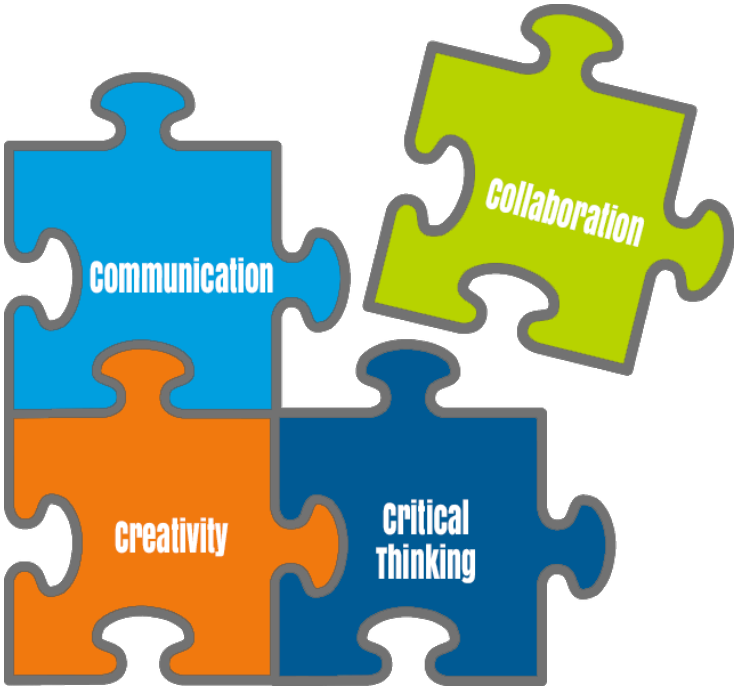
Which jobs will survive?
In the long run, 500 years from now, everyone is going to be involved in some kind of information or entertainment. Nobody on the planet in 500 years will do a physically repetitive thing for a living. There will be no farmers, there will be no people working in manufacturing. To me it is an impossibility that people would do that. People might do it for fun. You might have an organic garden in your backyard because you love it. Five hundred years from now I don't know if even 10 percent of people on the planet have a job in the sense of being paid to do something.

Source: MIT Technology Review

http://www.technologyreview.com/qa/541571/on-the-edge-of-automation/

The 4Cs for 21st Century Learning

Conceptualizing, developing, and assessing the 4Cs



"We know educators are eager for proven methodologies to engage students and bring the 4Cs to life in the classroom," said Dr. Helen Soulé, P21 executive director.

Source: Partnership for 21st Century Learning

Creativity - Creativity is widely acknowledged to be a key 21st century skill and included in many countries' desired college & career ready outcomes for students. Humanity has been fascinated by the creative process for millennia. But what do we know about creativity?

Critical Thinking - How do we think? What processes do we use to solve problems? Can these processes be learned? Although many aspects of human cognition are still a mystery, psychologists have begun to flesh out critical thinking, or the strategies we use to think in organized ways to analyze and solve problems.

Collaboration - Collaboration is increasingly mentioned as an important educational outcome and most models of 21st century education include collaboration as a key skill. The value of collaboration has been assumed for many years, and over the past two decades we have seen leading businesses and organizations move to facilitate team building and team-based work. The ability to work effectively with others has become a critically important skill for career and life success.

Communication - Communication is one of the key components of 21st century learning, yet it has not attracted the same level of research or attention as creativity, collaboration, or critical thinking. Communication competence involves mediated and digital communication, interpersonal, written and oral communication. As our society evolves, we cannot assume that our students will gain communication competence on their own. If educators are expected to teach students how to communicate effectively, researchers need to focus on building a stronger, more empirically grounded framework for teaching these vital skills. What do we know about communication?

http://www.p21.org/component/content/section/9

Budget constraints cuts Guidance Counseling Options

Budgetary constraints leading to a decline in career guidance & counseling in schools.

Although schools would benefit from having more career guidance counselors, in today's economic climate, it is unlikely that the reduction in school funds will allow for a drastic increase in counselor positions.

Students need advising and counseling to make well-informed decisions about their career plans. Many students receive advice from family members and other adult contacts; but some students, especially those with limited access to college and career planning resources, may rely more on school counselors for information. Unfortunately, many schools have been forced to cut school counselor positions due to budgetary constraints, resulting in a national average student-to-counselor ratio of 459:1 in the 2009–10 school year (National Center for Education Statistics, Common Core of Data, 2010). As a result, career guidance and counseling is severely limited, and most counselors have time to focus only on test scheduling or the college application process. Because of this focus, many counselors know little about current and emerging careers or the knowledge and skill requirements of most jobs.

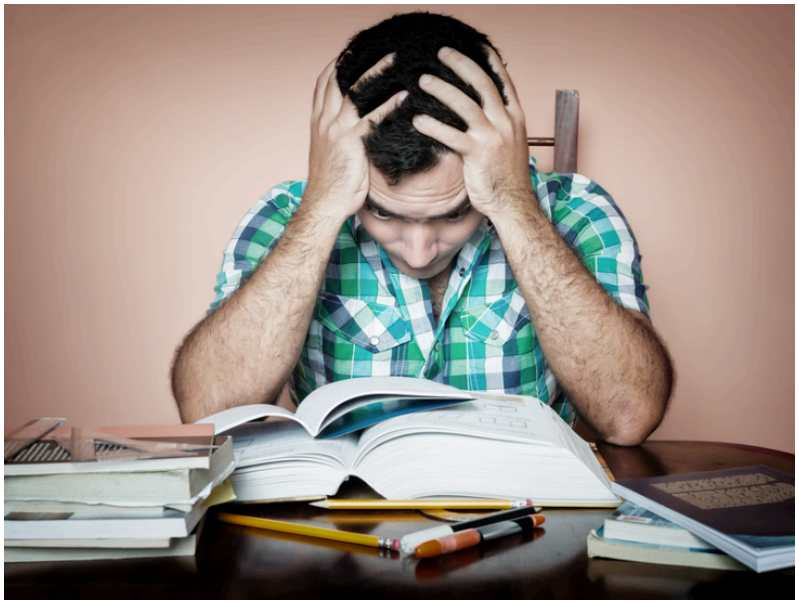
In place of more counselors, schools and colleges can encourage teachers and faculty to advise students on a more regular basis, invite employers to meet with students to talk about careers and skills needed, build career exploration into certain classes, and/or create career advisories. Advisories often are elective classes during which a small group of students meets with a school staff member to discuss academic and career goals and to map out course pathways and supports that will enable each student to meet those goals by high school graduation. Advisories also may offer students an opportunity to learn about various careers.

As an alternative strategy, some high schools that offer numerous CTE programs of study provide a semester-long exploration of each pathway as a way to help students decide which program of study to pursue.

Source: American Youth Policy Forum

What is the Perception of CTE Courses?

Nebraska study shows the public attitude toward CTE: CTE courses just as important but not as respected as academics.



Perceptions of Career and Technical Education (CTE) Courses

The Nebraska public believes that CTE prepares students for careers and college, and that CTE courses are just as important as traditional academic subjects.

However, substantial proportions of Nebraskans believe that CTE students are not as respected as students who take more traditionally academic courses.

Source: University of Nebraska

The public was asked a series of questions about their attitudes toward CTE in Nebraska. In general, the results showed that the public had positive attitudes toward CTE and its applicability in the current economy. For example, nearly 84% of respondents agreed that, "CTE classes teach students the basic skills necessary for employment" and nearly 70% of respondents disagreed with the statement, "CTE courses are easy."

The public also appeared to view CTE as dynamic and engaging for students. For instance, nearly 68% of respondents agreed that, "The content of CTE classes keeps up with changes in careers and technology." Additionally, over 80% of respondents agreed that, "CTE classes engage students and get them excited about learning."

Participants were also queried about their opinions regarding the intellectual rigor of CTE courses and the responses were again positive: nearly 70% of respondents agreed that CTE classes stress academic achievement as much as technical skills and over 90% agreed that CTE is just as important as subjects such as math, English, and social studies (see Table 1).

However, the attitudes of the public seemed to reflect the possibility that there are negative perceptions of CTE courses and the students toward whom they are geared: almost 47% of respondents agreed that, "CTE tends to focus on students who probably won't go to college," and 49% agreed that, "Students in CTE programs are as respected as students who take more traditional classes."

RoboLove

Forget the dystopian nightmares and/or the sci-fi fantasies: many consumers will have their first face-to-face encounters with robots in 2015. And they'll enjoy them.

November 2014 saw US hardware retailer Lowe's trialling OSHbot robot sales assistants in a California store. The robots have a 3D scanner to identify items bought in by customers and check if replacement parts are in stock. They are also programmed to speak English and Spanish, with further language options planned.

In Japan, Nestlé are trialling a robotic customer service assistant named Pepper to help guide people through the Dolce Gusto and Gold Blend coffee brand product ranges. Trials start in December 2014, with plans to roll the robots out to 1,000 stores by the end of 2015.

Source: Trendwatching

Jeff Bezos recently told shareholders that Amazon would have 10,000 Kiva robots by the end of 2014 (from just 1,400 in 2013), and that this could cut fulfillment costs for an average order by 20-40% (BCG, August 2014).

And while lower costs will be central to the robot narrative told in boardrooms during 2015, smart business will be planning not just how robots might decrease their costs, but how they can also increase customer satisfaction, too.

Draw inspiration from the examples below around how to use robots to initiate better customer service: more reliable, faster, richer, more personal, more convenient ... the list goes on.

Remember, this isn't about Man vs. Machine. ROBOLOVE will free your (human) employees from the most repetitive parts of their roles, and free them to focus on the more engaging, valuable tasks (that will further increase their satisfaction, and so ultimately that of your customers too).

http://trendwatching.com/trends/10-trends-for-2015/

Post-Demographic Strategies

"...for brands looking to engage Gen Z, authenticity rules"

67% of men have changed jobs or said they would be willing to do so to better balance family life, versus 57% of women.
EY AND HARRIS INTERACTIVE, APRIL 2015

74% of Chinese shoppers are likely to consider whether a product is fair trade, environmentally friendly or donates a portion of proceeds to charity when buying, a higher proportion than in Australia or New Zealand.

MASTERCARD, APRIL 2015

Source: Trendwatching

People – of all ages and in all markets – are constructing their own identities more freely than ever. As a result, consumption patterns are no longer defined by 'traditional' demographic segments such as age, gender, location, income, family status and more.

Four POST-DEMOGRAPHIC strategies

- NEW NORMAL: Embrace and celebrate new racial, social, cultural and sexual norms.
- HERITAGE HERESY: Be prepared to re-examine or even overturn your brand heritage.
- CROSS-DEMOGRAPHIC FERTILIZATION: Look to seemingly foreign or disparate demographics for inspiration.
- HYPER-DEMOGRAPHIC IRONY: Focus on ever smaller niches of interest rather than circumstance.

One example of Heritage Heresy: Eton – the UK boarding school that was established in 1440 and that has educated 19 British Prime Ministers – will offer invitation-only online courses for students in China, tailored to fit the curriculums of their schools.

http://trendwatching.com/trends/post-demographic-imperatives/

Post-Demographic Consumerism

Demographics are dead. Adapt your strategy or perish.

Use technology to tailor your marketing, products and services so that no consumer experiences them the same way.

Urban-dwellers share passions, pain points, high expectations and a hunger for new offerings.

We are still far from a world where every consumer can freely pursue their own identities. Bring this freedom to those who lack it.

Source: Trendwatching

The rapid embrace of new technologies, rampant global urbanization and the expectation that everyone should be empowered to live the way they want. Three strands of the POST-DEMOGRAPHIC world that demand you take action!

(i) The accelerating development of new technologies (from algorithms to big data to programmatic) gives brands the power to treat customers as the individuals they are, rather than as members of generic segments.

(ii) Continued urbanization means ever more people have the social freedom, economic means and diversity of product/service/experience choices they need to be themselves. Urbanites are your early adopters and your toughest critics. Meet their accelerating expectations or perish.

(iii) But remember, despite people's heightening aspirations, there are still repressed groups who are ignored or purposefully sidelined by institutions and brands. Recognize them, and then empower them to be themselves.

It can be hard to throw off the demographic blinkers and see a more complex reality. But looking away is no answer.

http://trendwatching.com/trends/post-demographic-imperatives/

Edcamp: the Unconference for Professional Development

Edcamp fosters rich discussions, collaboration and communication amongst peers

This unconference is a trending learning model that provides professional development for forward-thinking educators. Everything during Edcamp is participant driven.

The edcamp model is based on the international unconference model, BarCamp. Despite its name, BarCamps have little or nothing to do with alcohol. Rather, computer hackers conceived them as a way to come together to share ideas. According the to BarCamp wiki, a BarCamp:

- is an ad-hoc gathering born from the desire for people to share and learn in an open environment
- is an intense event with discussions, demos and interaction from participants who are the main actors of the event

The topics during edcamp are determined by the participants. The day of, participants volunteer to lead discussions on a certain topic. Participants are free to float to different topics as desired by interest. As a result, participants are more engaged, topics are discussed and it's a more productive use of time with co-workers.

Educators who have attended Edcamps have been inspired to take this model into their classrooms. Students are able practice their presentation skills with peers. Edcamps introduce students to 21st century skills including critical thinking, synthesizing information and team collaboration that is important to success in workplaces.

http://www.eschoolnews.com/2015/07/28/student-edcamp-373/3/

Source: eSchoolNews.com

"The conversations are awesome... When you allow kids to have a voice and a choice in their learning, it increases their level of investment."

Virtual Workplace Simulations

Virtual workplace simulator enables companies to trial job candidates

The West Virginia Department of Education has worked with committee experts from numerous businesses and industries throughout West Virginia to design Simulated Workplace. This new educational initiative has been created to assist schools in implementing workplace environmental protocols that align with West Virginia workforce requirements, including random drug testing, professionalism, attendance and safety. Simulated Workplace has not only enhanced instructional delivery of career education, but has created a more engaged career and technical student.

Source: SpringWise.com

What would you do if you could have a virtual workplace simulation to use for recruitment, personal assessment and training?

In the past few years, we have seen virtual environments expand beyond the gaming and entertainment sectors and be implemented as useful test-driving tools in industries including real estate, design and retail. Now, an innovate HR management company has created a virtual workplace simulation, which businesses can use for recruitment, personal assessment, on-the-job training and more.

http://www.springwise.com/virtual-workplace-simulator-enables-companies-trial-job-candidates/

Virtual Workplace Simulations

Doctors will soon be able to study 3D-rendered organs in VR before operations

Medical students can also use this as a tool to explore the human body as if they're dealing with the actual thing. Although the digital screen won't replace work on actual tissue, the zSpace can let the medical community build a library of illnesses in VR data so closer inspections, even in rare diseases, can be possible.

The groundwork has already been laid. VR content is already being made every time someone undergoes a diagnostic scan. Hardware capable of VR rendering are already available. Soon enough, we will be able to see our hearts floating in our doctor's screens.

Source: SpringWise.com

Doctors currently rely on flat images from CT and MRI scans for pre-op information about patient's organs. Now, however, health tech startup EchoPixel is planning to use the information garnered from current medical imaging technology to produce 3D virtual reality organs, which doctors can explore and inspect before beginning surgery.

EchoPixel uses the images which are already being gathered during medical imaging processes to create 3D-rendered body parts. These floating masses can then be examined via a VR platform called zSpace. Doctors can rotate and dissect the images of organs, including the brain and the heart, using a stylus. They can even examine a colon via a simulated fly-through.

EchoPixel hope their technology will help doctors gain an enhanced understanding of the intricacies of each organ, and enable them to go into surgery well-rehearsed. It can also be used by medical students as a supplementary learning tool. Could this combined technology be used in other industries too — such as mechanics or construction?

http://www.springwise.com/doctors-study-3d-rendered-organs-vr-operations/

The Future of EdTech 101

By the year 2050 higher education will be transformed by three trends: automation, curation, and gamification.

These three ideas for the future would be costly but only for the first world countries. As these ideas are implemented, today's system of technology and education will already be outdated. But without a doubt, the entire world will be interconnected, whether it be through the internet or a different medium. Even so, there is no guarantee of a *better* education, only of better opportunity to educate larger groups of people possibly at lower costs.

Source: Forbes

The source for this Concept Card comes from an article written by a high school senior earlier this year.

1) **Automation** in our lives has barely started but we can expect it to grow. Professors will upload class schedules directly into students' digital calendar and provide notification for due dates and syllabus changes. Assigned books will be ordered when a student enrolls in a class and delivered digitally or physically based on a student's preference.

2) **Curation** is naturally the next step in this process. Imagine this system implemented for research and studying. A site where all the best commentary, study guides, and analysis for Shakespeare's *Julius Caesar* is readily available to every British Lit major in the world. This goes beyond Google, which only links you to articles based on their popularity and your search history, not their academic integrity. Every freshmen in American History 101 will be able to communicate and tap into the work of those students who learned before them. It makes research easier and gives it the excitement of a hunt. what new, untapped piece of information is out there that can be posted?

3) This ties to **gamification**, the act of turning something that is traditionally not a game into one. It's like getting a gold star for a good job, but better. Imagine automated tracking of class participation, class grades, and work speed. Actively engaging in the classroom, and finishing quizzes as quick as possible with highest accuracy. Performance is public via game points or badges. A student who can actively brag that he outscored his classmates in attention.

http://www.forbes.com/sites/berlinschoolofcreativeleadership/2015/01/16/future-of-edtech-101-automation-curation-and-gamification/

Education Kills Creativity

How America's education model kills creativity and entrepreneurship

Perhaps it's no wonder our nation is facing a decline in new venture formation given that these are exactly the skills and traits needed to be innovative and entrepreneurial. A 1995 interview with Steve Job stresses the importance of tolerance for failure and the confidence to take risks. When asked about his vision of the world, Jobs replied: *"When you grow up you tend to get told the world is the way it is and your job is just to live your life inside the world. Try not to bash into the walls too much. Try to have fun, save a little money."*

Source: Forbes

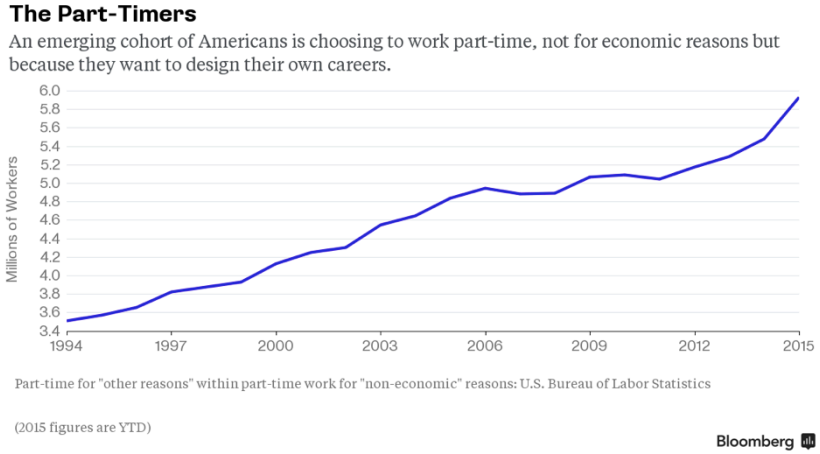
According to research conducted by Kyung Hee Kim, Professor of Education at the College of William and Mary, all aspects of student creativity at the K-12 level have been in significant decline for the last few decades. Based on scores from the Torrance Tests of Creative Thinking, her study reveals "that children have become less emotionally expressive, less energetic, less talkative and verbally expressive, less humorous, less imaginative, less unconventional, less lively and passionate, less perceptive, less apt to connect seemingly irrelevant things, less synthesizing, and less likely to see things from a different angle."

Sir Ken Robinson in his now famous Ted Talk, "How Schools Kill Creativity," argues for the need to reform existing education models (that were originally designed to support industrialization), calling on us to fundamentally "reconstitute our conception of the richness of human capacity" and adjust our education systems accordingly. Robinson argues that because the world is changing in transformational ways, "creativity now is as important in education as literacy," and should therefore be treated with the same status. And if our children are "not prepared to be wrong, [they] will never come up with anything original…" He further contends that as a society, "we stigmatize mistakes," and the result "is that we're educating people out of their creative capacities" and destroying children's natural willingness to take chances.

http://www.forbes.com/sites/darden/2015/03/19/how-americas-education-model-kills-creativity-and-entrepreneurship-2/

Part Time Work for Quality of Life

6 million Americans would rather work part time and not commit to one job or employer.



"The workforce of the past was organized around company," says Chauncy Lennon, who runs JPMorgan's workforce initiatives and is studying flexible working arrangements. "The workforce of the future is organized around the worker. If we can't find the right people, it's going to hurt our bottom line."

Six million Americans are choosing to work part time, according to the U.S. Bureau of Labor Statistics. Typically young and college-educated, they're not doing so because personal or economic circumstances forced them to. Rather, many are abandoning the traditional career path their parents took and working just enough hours to pay the bills or pursue a passion: toy making, puppetry, nonprofit advocacy. Their numbers have increased 12 percent since 2007, according to the BLS, a shift with broad implications for hiring practices.

More than 20 million Americans are working less than 35 hours a week for "non-economic reasons," according to the BLS. In other words, it's a deliberate choice—not because they can't find full-time jobs.

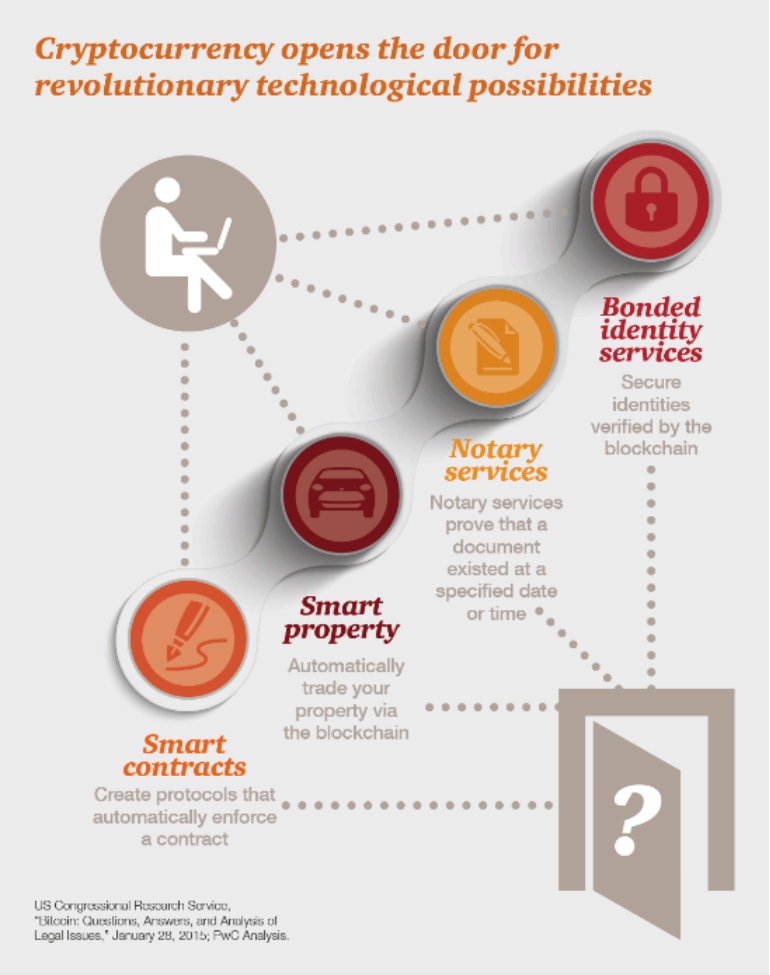
By 2020, as much as 40 percent of the workforce may toil part time, according to Mike Preston, Deloitte's chief talent officer. Companies focused solely on traditional full-time hires are missing out, Preston says.

Source: Bloomberg Business

http://www.bloomberg.com/news/articles/2015-08-18/why-6-million-americans-would-rather-work-part-time

Crypto-Currency

Cryptocurrency opens the door for revolutionary technological possibilities



Source: PwC

The issue is no longer whether cryptocurrency will survive, but rather how it will evolve. Each of the five key market participants—merchants and consumers, tech developers, investors, financial institutions, and regulators—will play a critical role in this process. Learn more about this exciting new technology, as well as the strategies to best aid its growth and harness its potential.

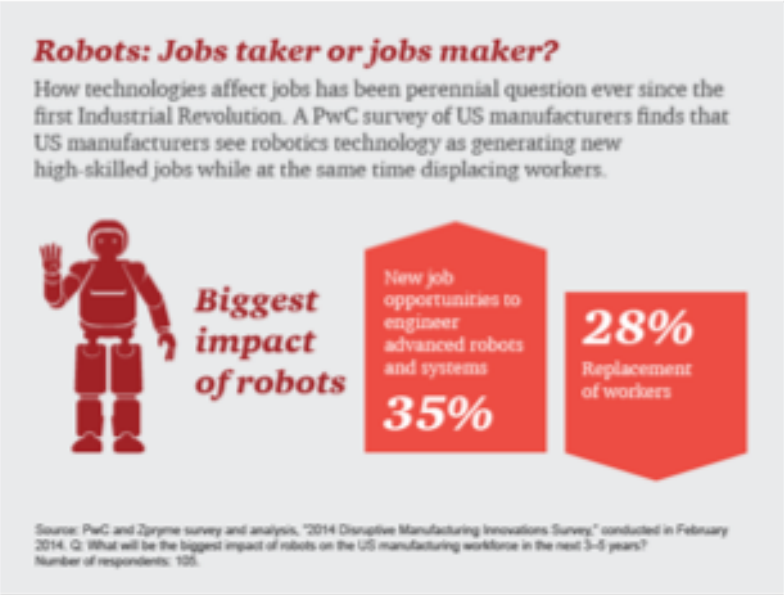
The blockchain public ledger technology (which underlies cryptocurrency) has the potential to disrupt a wide variety of transactions, in addition to the traditional payments system. These include stocks, bonds, and other financial assets for which records are stored digitally and for which currently there is a need for a trusted third party to provide verification of the transaction.

In our view, cryptocurrency represents the beginning of a new phase of technology-driven markets that have the potential to disrupt conventional market strategies, longstanding business practices, and established regulatory perspectives—all to the benefit of consumers and broader macroeconomic efficiency.

http://www.pwc.com/us/en/financial-services/publications/cryptocurrency-evolution.jhtml

Cobotics

Will companies warm to the new wave of Next Manufacturing?



How can a company make the leap to fully embracing cobotics?

The first steps: An organization should identify which tasks now assigned to humans could effectively be carried out by robots, determine which robots can most effectively and easily be programmed to complete the required tasks, and address safety considerations.

Source: PwC

In the workplace, innovative robot-human collaboration is poised to have a dramatic impact. Even medium-sized and small companies are expected to benefit from adopting a hybrid human-robots approach to manufacturing sooner rather than later. This paper offers a quick overview of the technology, and summarizes the implications and issues for businesses.

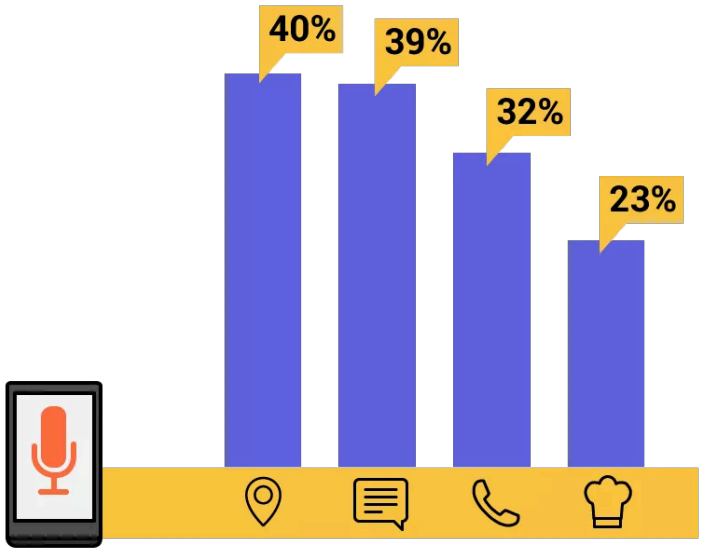
Robotics technology, and the potentially revolutionary implications, long have been the subject of speculation by futurists and analysts at think tanks devoted to advanced technology. Robots are rapidly becoming smarter, faster, and cheaper, and robotics advancements are accelerating at an ever greater pace. And robots-enhanced automation — driving repeatability and standardization — has the potential to level the manufacturing field.

Now, the robotics experts are coming right out and shouting the obvious: The new breed of robot, steadily marching onto factory floors around the world, increasingly will function more like a colleague than a lowly, narrowly focused electronic assistant, capable of only rote work and previously assigned solely to tasks deemed too dirty, dangerous, or dull for humans. So why are some companies hesitating to fully embracing cobotics, and what are the obstacles?

http://www.pwc.com/us/en/industrial-products/publications/robotic-human-collaboration-manufacturing.jhtml

Interacting with Technology with No Interface

Speech, gesture, touch, sight: why truly intuitive technologies are set to transform your interactions forever.



40% of adult smartphone owners use voice search to ask for directions, 39% to dictate a text message, 32% to make a phone call, 23% while they are cooking.

Source: Trendwatching

NO INTERFACE | Determined to feed their ever-intensifying addictions to digital information AND live in the present moment, consumers are demanding new, more natural forms of interaction with technology. That means devices they can talk to, notifications they can feel, information that's a part of the world around them – and much more!

Truly natural, intuitive interaction with technology has always been the dream. That is, interaction so natural, so human, that it needs NO INTERFACE.

So what's different now? In 2016 NO INTERFACE will finally become a reality, thanks to the powerful convergence of primed user expectation and new technologies that are both fueling and serving the need for more natural interactions with tech.

The Internet of Things, wearable devices and beacon technology are about to send a whole new avalanche of notifications, alerts, data, deals and more to the screens of willing consumers. One indication of the what's to come? Tech analysts forecast that 4.9 billion connected objects will be in use in 2015, up 30% on 2014 (Gartner, November 2014).

http://trendwatching.com/trends/no-interface/

Free agent nation

Freelancers are predicted to make half the U.S workforce in 2020

"It's reasonable to assume that, in our collective lifetimes, freelance or contractual work will be the fundamental core of our global labor market. There will be way more freelancers than full-time permanents. A world of full-timers and full-time-nots looms just over the horizon"
.

While the economy makes an ongoing recovery from the recession in 2008, the freelance economy continues to grow. Today 34% (32 million Americans) of the U.S workforce is considered temporary or freelance workers. This is predicted to increase to 50% by 2020.

Factors Enabling Freelance Growth:

- ❑ Management systems – company software enhancements to handle large influx of freelancers, compared to previous single-use solutions and spreadsheets
- ❑ Freelancers needed in not just small businesses – global enterprises continue to use independent workers on a more frequent basis
- ❑ Data Metrics in Hiring – Crowdsourced marketplace ratings allow for even more transparency of potential hires

Source: Forbes.com

http://www.forbes.com/sites/jeannemeister/2013/08/13/how-moocs-will-revolutionize-corporate-learning-development/

MOOCs with Corporate learning and development

Online learning revolutionizing corporate learning departments

"The new learning style's most important legacy could be its impact on the world of corporate training – which is a $150 billion industry."

MOOCs (Massive Open Online Classroom) has been a disrupter in the educational word since 2008. MOOCs used for corporate training and learning is beneficial for the employer financially, and enables the employee to have access to personalized learning paths.

MOOCs are also being used as a new recruiting strategy with companies. For example, Facebook and Twitter are working with Coursera to reach out to students who perform well on certain courses

Benefits:

- Employees can access training curriculum 24/7
- Widen profit margin – don't have to pay for on-site instructors
- MOOCs can be customized to address daily challenges – employees can gain knowledge on proposal presentations before a meeting

Incorporating MOOC concepts inside the organization will ultimately challenge the human resources and corporate learning departments to rethink and re-imagine their value proposition.

Source: Forbes.com

http://www.forbes.com/sites/jeannemeister/2013/08/13/how-moocs-will-revolutionize-corporate-learning-development/

Virtual Reality: coming to a home near you

VR headsets set to approach 30 million by 2020

"The recent attention to and investment into virtual reality is helping to revitalise the industry and with major brand commercial launches imminent, there is huge potential for rapid market expansion," says Joe Crabtree, report co-author, Juniper Research.

Wearable Virtual Reality Head Mounted Display (Head Mounted Display) headset shipments will approach 30 million globally by 2020, compared to just over three million in 2016.

Juniper's latest Insights research report, 'Virtual Reality: Market Dynamics & Future Prospects 2015-2020' identifies 2016 as the watershed year for virtual reality headsets, in terms of product launches and consumer roll outs.

Juniper expects significant VR uptake over the forecast period as consumers benefit from a combination of improved VR technology allied to immersive applications, as well as reduced prices.

The research notes that developments in user interaction with the virtual environment will have a major impact on the success of VR products.

While the current systems being developed will revolve around a stereophonic headset and a variety of controllers similar or identical to the current gaming devices, improvements to the immersive aspects of the experience will continue to evolve.

Source: ARNNET.com

http://www.arnnet.com.au/article/584577/virtual-reality-entering-watershed-year-shipments-set-smash-30-million-mark/?fp=2&fpid=1

Is Virtual Reality the Future of Retail?

VR headsets set to approach 30 million by 2020

One of the most exciting aspects of VR is that there is truly no limit to what companies can do with this new technology. If ever there was an opportunity to proceed with unbridled enthusiasm and creativity, it's now.

While VR will likely leave its mark on nearly every industry, perhaps none is poised for transformation more than retail. For those stores and brands interested in capitalizing on the VR opportunity -- and indeed, any smart company should be -- here are three strategies for developing a cohesive v-commerce strategy:

1. **Start playing and testing**. While many retailers see VR as a long-term investment, widespread adoption is expected in as little as three years.

2. **Focus on mobile-enabled VR**. Nearly every smartphone manufactured today is VR-enabled by virtue of its screen resolution and processing power. Every smartphone owner has a set of virtual worlds, literally at their fingertips. As smartphone resolution and processors continue to improve, VR experiences will become more and more robust.

3. **Integrate technology**. Many of the technological challenges that surfaced years earlier with the emergence of mobile and web have helped us to understand the need to integrate back-end technology in order to create a truly seamless experience. At the same time, it's important to realize that VR technology will continue to evolve. Facebook and YouTube, for example, have opened their platforms to allow 360-degree video, and consumers now have access to affordable companion cameras such as the Ricoh Theta and Kodak SP360.

Source: AdAge

http://adage.com/article/digitalnext/virtual-reality-frontier-retail/300061/

Is Virtual Reality the Future of Learning?

VR headsets set to approach 30 million by 2020

The terracotta brickwork of the Great Wall of China transfixes a group of students, who reach out to touch the stone in front of them. But these children are not in east Asia. Instead, they've been magically transported to the historic monument by a virtual reality (VR) headset.

They are using Expeditions, a new classroom initiative unveiled by Google in May. The inexpensive cardboard contraption – literally a folded piece of cardboard with lenses attached – turns a smartphone into a VR viewer. "The creativity we have seen from teachers, and the engagement from students, has been incredible," says Google's Ben Schrom, product manager for Expeditions.

Source: TechCrunch and Fortune

Some of VR's greatest potential lays not at home, but in the classroom. Hell, you can boil VR's potential as a learning tool into just three little words: Magic. Friggin'. Schoolbus. Think shared group experience in impossible places led by an instructor and bam: it all makes sense.

Discovr Labs has built an interface and technology to help teachers use VR as a teaching tool. After the student straps on their headset, Discovr allows the teacher to select which module the student is interacting with, and to see exactly what the student sees; everything from the headset is beamed, wirelessly, to an all-seeing interface.

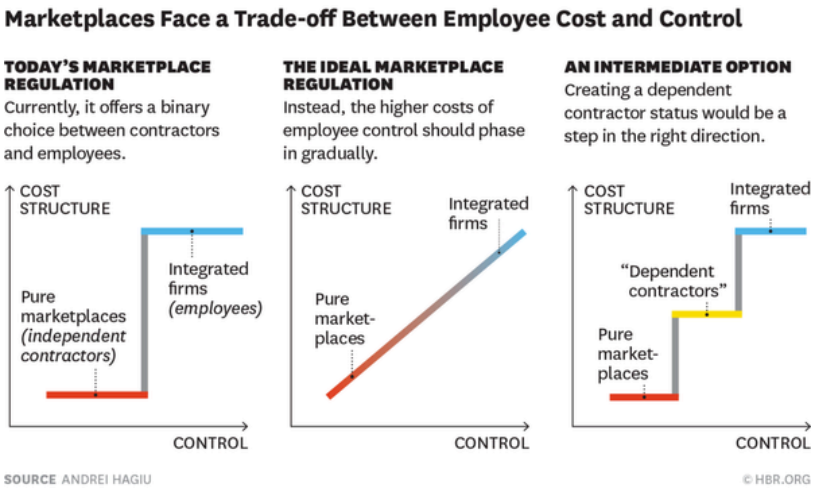
Google is bringing its cheap and easy set to the classroom, helping teachers take their students on virtual field trips with Cardboard units, mobile devices, and software.

Dubbed "Expeditions," Google's program is partnering with organizations such as the Planetary Society and the American Museum of Natural History for content. Through Expeditions, teachers will receive a kit for their classrooms which will include cardboard viewers for each student, Android phones, a tablet, and pre-installed software that will keep all the viewers synced together. All the teacher has to do is get the virtual field trip going on their device to send the whole class on a trip together.

http://techcrunch.com/2015/09/21/discovr-labs-brings-virtual-reality-to-the-classroom-lets-teachers-see-what-students-see/

Continuous Partial Employment

Focusing attention on “Next Economy companies” misses deeper changes in the labor economy



There are two different approaches to using technology to manage labor. One provides data and control solely to managers, disempowering workers and minimizing their costs to improve company profits; the other offers data to both managers and workers, giving workers agency, the freedom to work when and how much they want.

If “the algorithm is the new shift boss”, the business rules driving the algorithm, and whether it increases or decreases the opportunities offered to workers, make a huge difference!

Source: Medium.com

When we talk about the “on-demand economy”, we are really talking about two things: the ability of a consumer to summon a vehicle, their lunch, or their groceries with the touch of an app or a few words to Siri, Cortana, or Google Now; and the lives of the workers who respond to those summons. Instant on-demand consumer services mean workers must also be available on demand.

Companies such as Lyft, Uber, TaskRabbit, Postmates, Upwork (and too many other new startups to count) all depend on a large pool of workers who make no set work commitments, who are bound to no schedule, but simply turn on an app when they want to work, and compete with other workers for whatever jobs are available.

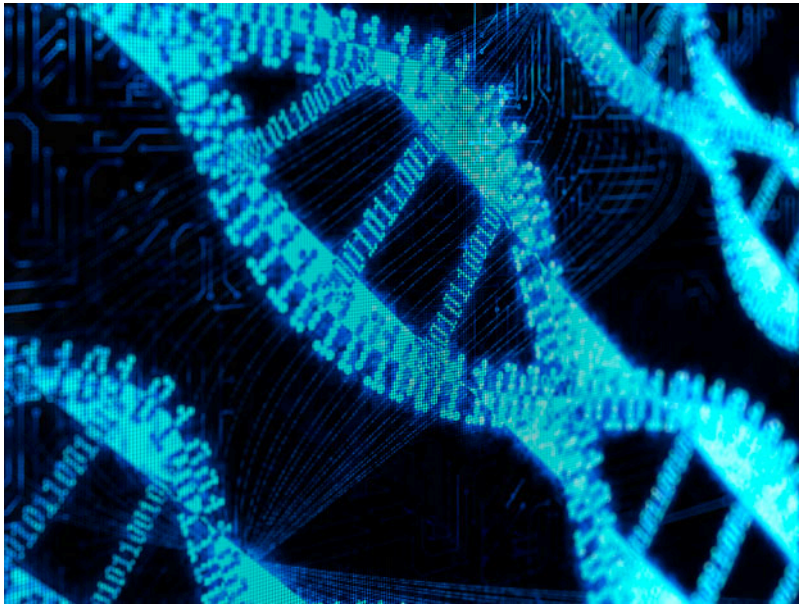
Traditional companies have always had a need to manage uneven labor demand. In the past, they did this by retaining a stable core of full time workers to meet base demand, and an expanded group of part time contingent workers or subcontractors to meet peak demand.

But in today’s world, this has given way to a kind of continuous partial employment for most low wage workers at large companies, where sophisticated workplace scheduling software lets companies build larger-than-needed on-demand labor pools to meet peak demand, and then parcel out the work in short shifts and in such a way that no one gets full time hours.

https://medium.com/the-wtf-economy/workers-in-a-world-of-continuous-partial-employment-4d7b53f18f96

Using DNA to Store Data

Harvard cracks DNA storage, crams 700 terabytes of data into a single gram



Just think about it for a moment: One gram of DNA can store 700 terabytes of data. That's 14,000 50-gigabyte Blu-ray discs… in a droplet of DNA that would fit on the tip of your pinky. To store the same kind of data on hard drives — the densest storage medium in use today — you'd need 233 3TB drives, weighing a total of 151 kilos.

It's also worth noting that it's possible to store data in the DNA of living cells — though only for a short time. Storing data *in your skin* would be a fantastic way of transferring data securely…

Source: Extreme Tech

A bioengineer and geneticist at Harvard's Wyss Institute have successfully stored 5.5 petabits of data — around 700 terabytes — in a single gram of DNA, smashing the previous DNA data density record by a thousand times.

Scientists have been eyeing up DNA as a potential storage medium for a long time, for three very good reasons: It's incredibly dense (you can store one bit per base, and a base is only a few atoms large); it's volumetric (beaker) rather than planar (hard disk); and it's incredibly stable — where other bleeding-edge storage mediums need to be kept in sub-zero vacuums, DNA can survive for hundreds of thousands of years in a box in your garage.

It is only with recent advances in microfluidics and labs-on-a-chip that synthesizing and sequencing DNA has become an everyday task, though. While it took years for the original Human Genome Project to analyze a single human genome (some 3 billion DNA base pairs), modern lab equipment with microfluidic chips can do it in hours.

http://www.extremetech.com/extreme/134672-harvard-cracks-dna-storage-crams-700-terabytes-of-data-into-a-single-gram

The Nanodegree

A new form of workplace certification recognized and created by technology companies

"We can't turn you into a Nobel laureate," Mr. Thrun (Udacity's founder) said. "But what we can do is something like upskilling — you're a smart person, but the skills you have are inadequate for the current job market, or don't let you get the job you aspire to have. We can help you get those skills."

Udacity, a four-year-old online teaching start-up, believes that after years of trial and error, it has hit on a model of vocational training that can be scaled up to teach millions of people technical skills. Early data suggests the program is efficient and reliably results in new jobs.

Udacity partnered with technology companies to create online courses geared toward teaching a set of discrete, highly prized technical skills — including mobile programming, data analysis and web development. Students who complete these courses are awarded the nanodegree, a credential that Udacity has worked with Google, AT&T and other companies to turn into a new form of workplace certification.

A year after the program's start, the company has 10,000 students enrolled in its nanodegree courses, and the number is growing by a third every month. Udacity charges $200 a month for the courses (students can take as little or as much time as they want to finish). When they successfully complete a course, Udacity gives back half the tuition. The company says that a typical student will earn a nanodegree in about five months — in other words, for around $500.

Mr. Thrun has found a way to offer personalized teaching systems on a wide scale while keeping costs low. He does so using a proven Internet trick — online outsourcing. Udacity has a network of paid graders across the world who are well versed in each of its courses; when students submit their projects, one of these graders picks up the work and quickly assesses it, including detailed comments about the student's progress. The graders can earn $50 to $100 an hour.

Source: NY Times

http://www.nytimes.com/2015/09/17/technology/udacity-says-it-can-teach-tech-skills-to-millions.html

Making Sense of Credentials

A framework for navigating the landscape of licensing and credentialing models

	CERTIFICATE	CERTIFICATION	DEGREE	LICENSE
AWARDED BY...	Education Institution	Business, trade associations, industry	Education Institution	Government Agency
RESULTS FROM...	Course of Study	Assessment	Course of Study	Meeting Requirements
INDICATES...	Education	Skill Mastery	Education	Legal Permission
COMPLETED IN...	>2 Years	Variable	2+ Years	Variable
MAINTAINED BY...	N/A	Skill practice, re-assessment	N/A	Re-application, continuing education
EXAMPLE...	ServSafe Food Handler, Green Manufacturing Specialist, Certificate in Business Administration	Certified Welder (CW), Certified Logistics Technician (CLT), Certified International Information Systems Security Professional (CISSP)	Bachelor of Science, Master of Science, Doctor of Engineering	Registered Nurse (RN), Cosmetologist, Master Plumber

The number of high-demand jobs requiring an occupational license has grown over the past several years. This shift requires changes from the education community when considering the requisite training and preparation that students will need to enter these careers.

licenses are just one type of credential that students can obtain in their educational journey, and with states working to meet the new Workforce Innovation and Opportunity Act (WIOA), understanding the different types is more important than ever.

- More than one-quarter of U.S. workers now require a license to do their jobs, and most are licensed by their state – which represents a five-fold increase since the 1950s.
- The share of licensed workers varies widely across the states from 12 percent in South Carolina to 33 percent in Iowa. Differences are largely due to state policies not occupational differences across the states.

Source: The Association of Career & Technical Education

http://blog.careertech.org/?p=11859

What's the Value of Higher Education?

How can the value of a college education be measured?

When thinking about the ultimate outcome of a college degree, there is almost universal agreement about the value people seek and expect: **to increase the probability of getting a good job and having a better life.** Yet, there is not a single college or university in the U.S. that has rigorously researched and measured whether their graduates have "great jobs" and "great lives."

65 percent of employers are looking to hire recent college graduates and the most sought after candidates will have skills in IT, customer service, finance, sales and business development.

Health careers were one of the occupations that students found extremely high returns on their college investment.

- Students follow many varied pathways to credentials, and some pathways—even those resulting in the same degree—offer better labor market outcomes than others.
- Increases in income that accompany higher education do not always translate into a positive return on investment, due to variable higher education costs and accompanying debt loads. Information on employment and earnings among those who earn credentials can be misleading if they don't also account for non-completers' outcomes.
- Skills valued by employers are not always confined to a given field of study—competencies associated with STEM degrees, for example, are highly valued across many non-STEM fields and occupations.
- Completion generally pays off, but it may not be the only metric of success. In some cases, clusters of courses not leading to a specific credential provide significant boosts in employment and earnings.
- Some credentials that do not appear to have free-standing value may have significant value when assessed as part of a collection of higher education credentials that, together, lead to strong labor market returns.

Source: Various

What's the Value of Higher Education?

How can the value of a college education be measured?

The odds of being engaged at work are:

- **2.6x** Higher if … [College] prepared me well for life outside of college.
- **2.4x** Higher if … [College] passionate about the long-term success of its students.
- **2.2x** Higher if … I had a mentor who encouraged me to pursue my goals and dreams.
- **2.0x** Higher if … I had at least one professor at [College] who made me excited about learning.
- **1.9x** Higher if … My professors at [College] cared about me as a person.
- **2.3x** **Higher if … graduates experience all three**
- **2.0x** Higher if … I had an internship or job that allowed me to apply what I was learning in the classroom.
- **1.8x** Higher if … I was extremely active in extracurricular activities and organizations while attending [College].
- **1.8x** Higher if … I worked on a project that took a semester or more to complete.
- **2.4x** **Higher if … graduates experience all three**

For years, the value of a college degree has been determined not by the most important outcomes of a college education, but by the easiest outcomes to measure, namely, job and graduate school placement rates and alumni salaries (usually only from their first job out of college). While these metrics have some mer- it, they do not provide a holistic view of college graduates' lives. These outcomes do not reflect the missions of higher education institutions, and they do not reflect the myriad reasons why students go to college.

If employed graduates feel their college prepared them well for life outside of it, the odds that they are engaged at work rise nearly three times. Experiences in college that contribute to feeling prepared for life after college, such as internships or jobs where students are able to apply what they are learning in the classroom, active involvement in extracurricular activities and organizations, and working on a project that took a semester or more to complete are part of this preparation.

Source: Gallup / Purdue Poll

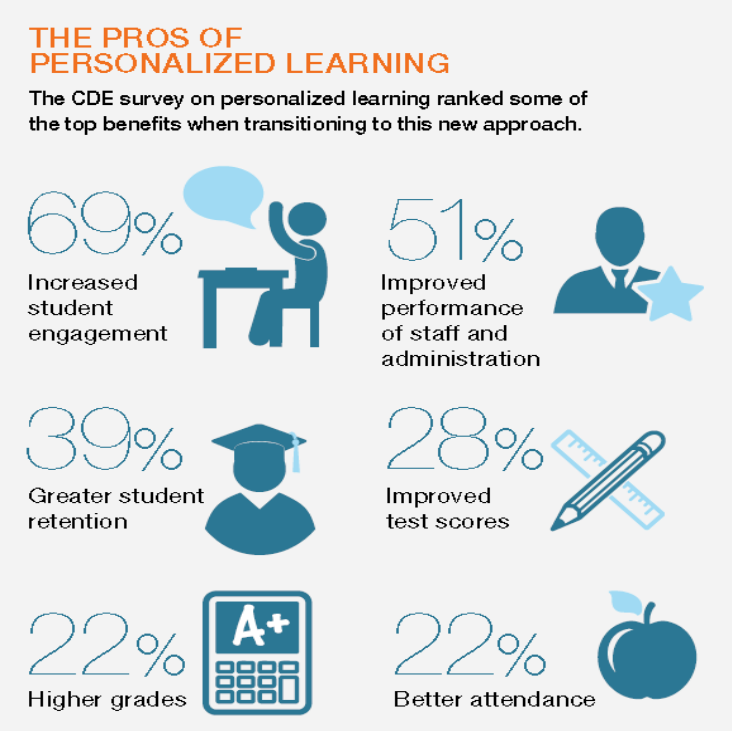
Odds of thriving in all areas of well-being are:

- **4.6x** Higher if … Engaged at work
- **2.0x** Higher if … Emotionally attached to school
- **2.5x** Higher if … [College] prepared me well for life outside of college.
- **1.9x** Higher if … [College] passionate about the long-term success of its students.
- **1.7x** Higher if … I had a mentor who encouraged me to pursue my goals and dreams.
- **1.7x** Higher if … My professors at [College] cared about me as a person.
- **1.5x** Higher if … I had at least one professor at [College] who made me excited about learning.
- **1.9x** **Higher if … graduates experience all three**
- **1.5x** Higher if … I had an internship or job that allowed me to apply what I was learning in the classroom.
- **1.4x** Higher if … I was extremely active in extracurricular activities and organizations while attending [College].
- **1.1x** Higher if … I worked on a project that took a semester or more to complete.
- **1.3x** **Higher if … graduates experience all three**

http://pdkintl.org/programs-resources/poll/

Personalized Learning - Delivered by Facebook

Facebook is working to develop software to help children learn at their own pace



"We've seen that there's an opportunity to help apply our skills to the future of education, and we all wanted to find a way to help make an impact by doing what we do best — building software," Chris Cox (Chief Product Officer at Facebook)

"It's really driven by this idea that we want to put learning in the hands of kids and the control back in the hands of kids," Diane Tavenner CEO, Summit Public Schools.

Facebook announced that it was working with a local charter school network, Summit Public Schools, to develop software that schools can use to help children learn at their own pace.

Eight Facebook employees have been assigned full time to work on the project, which began quietly last year after Summit's chief executive, Diane Tavenner, asked Mr. Zuckerberg for help improving the tools developed by Summit's lone software engineer.

The software allows students to work with teachers to create tailored lessons and projects. Teachers can also administer individualized quizzes that the software can grade and track.

The platform, which is separate from the Facebook social network, is now being used by nine Summit schools and about 20 others. Ultimately, Ms. Tavenner said, "our motivation is to share it with everyone and anyone who wants it," including other charters and public school districts. The software would be free for all users.

"You can't expect that we're just going to create the perfect platform and plunk it into every school and assume that every student is going to be comfortable knowing how to use it," said Rebecca E. Wolfe, who directs an initiative focused on personalized learning at Jobs for the Future, a nonprofit education policy group.

Source: NY Times

http://www.nytimes.com/2015/09/04/technology/facebook-education-initiative-aims-to-help-children-learn-at-their-own-pace.html

The Future of the Computer

HoloLens could replace PCs as the preferred workplace computer

Microsoft CEO Satya Nadella recently told the BBC that a developer version of HoloLens will come out "within the next year."

Workers may eventually use a HoloLens headset instead of a traditional Windows computer to communicate with co-workers on Skype or write a report in Word.

That's just one of the predictions from research firm Tractica, which looked at the effect wearable devices will have on enterprises and consumers as the technology becomes more widely used. Integrating these apps into HoloLens could result in the headset nudging out a traditional Windows desktop to become the primary workplace computer, the research firm said.

Source: Computer World

http://www.computerworld.com/article/2975172/wearables/hololens-could-replace-pcs-as-the-preferred-workplace-computer.html

The Cost of Post-Secondary Education and Training

College is just the beginning

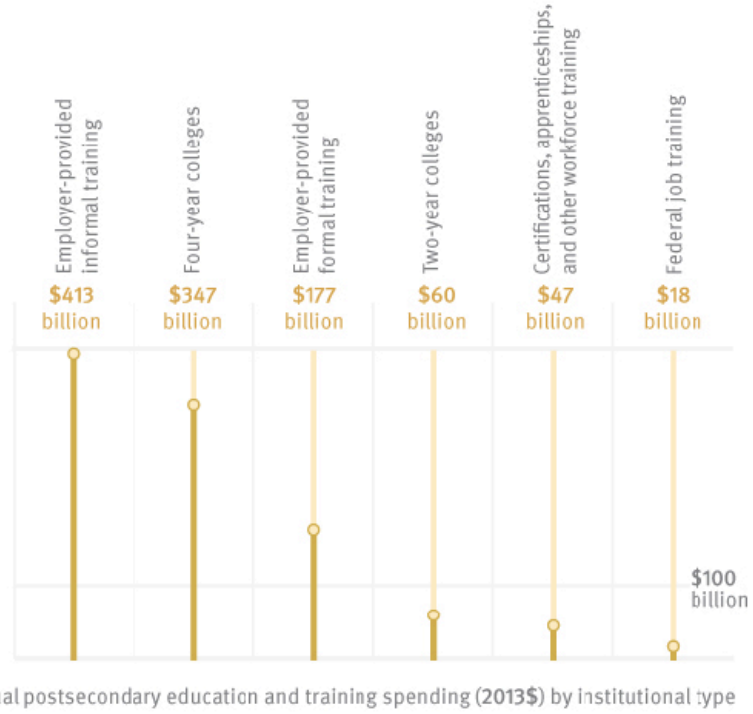


Figure 1. The United States spends $1.1 trillion on formal and infomal postsecondary workforce education and training annually.[1]

Source: Georgetown University Center on Education and the Workforce analysis of data from the Department of Education, Bureau of Labor Statistics, and Government Accountability Office. See Appendix for more detail.

Employers spend most of their formal training dollars on college educated workers Bachelor's degree-holders account for 58 percent of annual spending on formal training, while workers with an Associate's degree or some college credit but no degree account for 25 percent of spending on formal training. The upshot is that formal employer-provided training typically complements, rather than substitutes for, a traditional college education; employer provided training should not be viewed as a substitute for college or K-12 coursework.

Source: Georgetown's Center for Education and the Workforce

"College Is Just the Beginning," a report from Georgetown's Center for Education and the Workforce, examines the world of post-secondary education and training and found that roughly $1.1 trillion is spent annually.

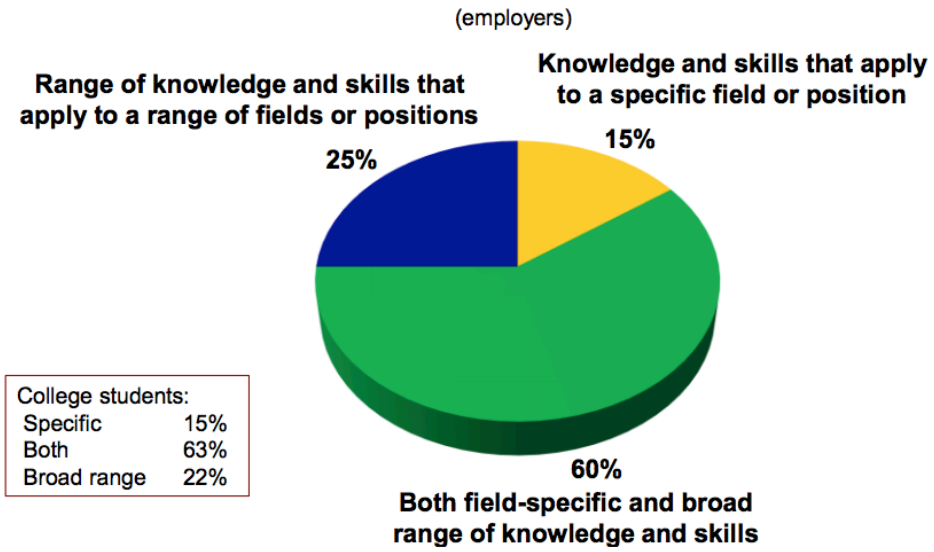
Researchers split the sum between colleges and universities ($417 billion) and employers ($177 billion in formal training; $413 billion informal on-the-job training). However, that employer number comes with a caveat – employers spend more because education providers may only have a student for a handful of years while an employer may have them for decades. The study also found that federally funded job training is the smallest component, ringing in at $18 billion.

https://cew.georgetown.edu/report/trilliontrainingsystem/

Falling Short? College Learning and Career Success

Strikingly large gaps between employers and recent college graduates regarding career readiness.

Which is more important for recent college graduates to have who want to pursue advancement and long-term career success at your company?



Nearly all employers (96%) agree that, regardless of their chosen field of study, all students should have experiences in college that teach them how to solve problems with people whose views are different from their own, including 59% who strongly agree with this statement.

Source: Association of American Colleges & Universities

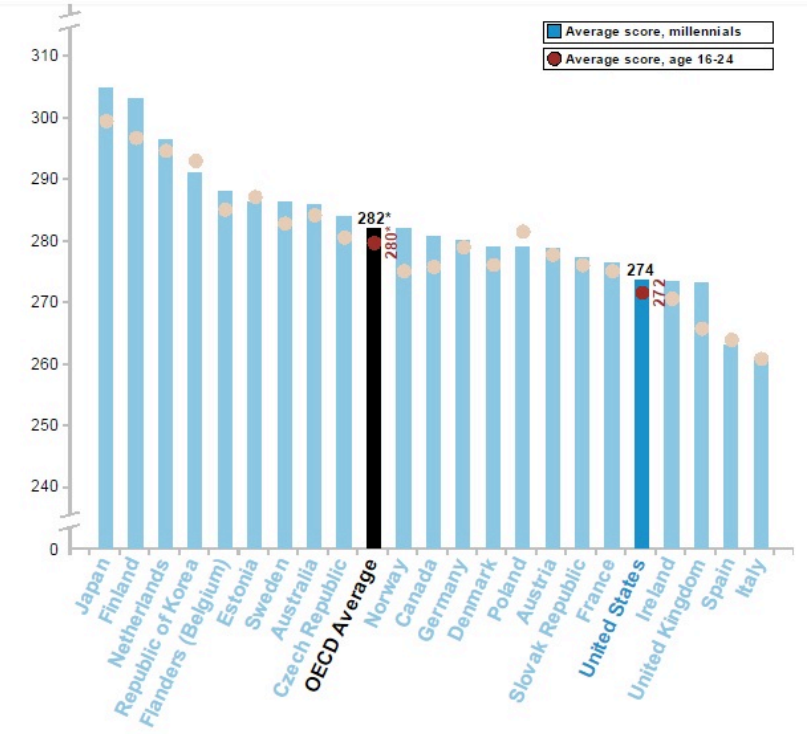
Employers say that when hiring, they place the greatest value on demonstrated proficiency in skills and knowledge that cut across all majors. The learning outcomes they rate as most important include written and oral communication skills, teamwork skills, ethical decision-making, critical thinking, and the ability to apply knowledge in real-world settings. Indeed, most employers say that these cross-cutting skills are more important to an individual's success at their company than his or her undergraduate major.

However, employers feel that today's college graduates are not particularly well prepared to achieve the learning outcomes that they view as important. This critique applies to all of the 17 learning outcomes tested, including the cross-cutting skills that employers highly value.

http://www.aacu.org/leap/public-opinion-research/2015-survey-results

Falling Short? Millenials and the Future

Millenials lag behind those in other countries and previous surveys of U.S. adult skills.



Average scores on the PIAAC literacy, numeracy, and problem solving in technology-rich environments scales for adults age 16–34 (millennials) and adults age 16–24, by participating country/region

Source: NASDCTEc blog post

Although so-called millennials are on track to be the most educated generation in American history, they are still lagging behind their international peers in critical skill areas such as literacy, numeracy and problem solving in technology-rich environments.

The answer is not simply to acquire more education but rather a greater focus on skills in order to combat growing inequality for current and future Americans.

- In literacy, U.S. millennials scored lower than 15 of the 22 participating countries. Only millennials in Spain and Italy had lower scores. In numeracy, U.S. millennials ranked last, along with Italy and Spain.
- In problem-solving in technology rich environments, U.S. millennials also ranked last, along with the Slovak Republic, Ireland, and Poland.
- The best-educated U.S. millennials — those with a master's or research degree — only scored higher than their peers in Ireland, Poland and Spain.

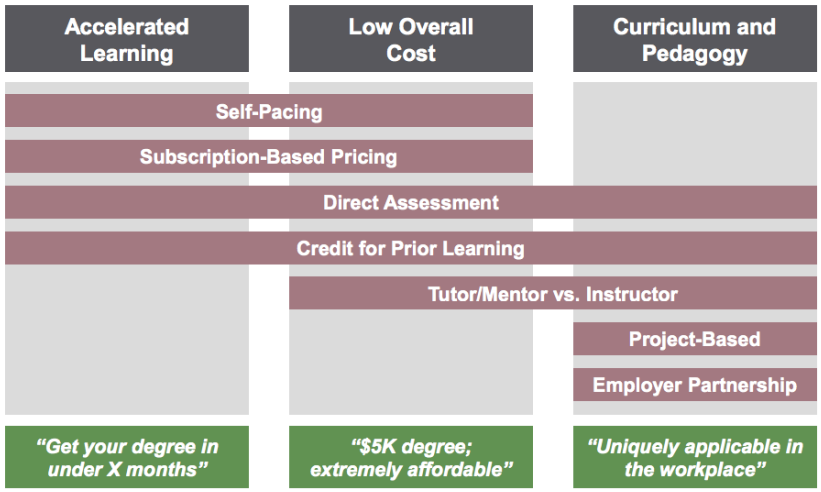
http://blog.careertech.org/?p=11316

Competency Based Education

They lag behind those in other countries and previous surveys of U.S. adult skills.

COMPETENCY-BASED EDUCATION'S VALUE PROPOSITION

What Is a Competency-Based Education Value Proposition?
Common value proposition themes and program elements are beginning to emerge.



On the one hand, employer enthusiasm for CBE programming is positively correlated with awareness. . . . On the other, no matter the industry or job type, the vast majority of employers remain unaware of CBE. Given this lack of awareness and understanding in the marketplace, an opportunity exists for the field to engage employers more proactively as partners in CBE programs, something most hiring organizations strongly desire. Employer openness to further engagement presents a real opportunity for CBE providers to emphasize the potential impact of CBE programs not only on students, but also on the employers eager to hire them.

Source: American Enterprise Institute

Competency-based education (CBE) is gaining traction in communities across the country, particularly within higher education. But what do we know about how employers see it?
The American Enterprise Institute recently published a first-of-its-kind survey of 500 hiring managers to better understand how employers view CBE. The study found:

- Overall employer awareness of CBE was low despite engagement efforts;
- Those who were aware of CBE, a small minority, generally viewed the model and its graduates favorably;
- The lack of awareness correlated to employers' lack of understanding the benefits of hiring graduates of CBE programs;
- Employers struggle to articulate discreet needs as competencies, and rather continue to hire based on generalizations of a new hire's "fit", which makes it difficult to create an effective competency map;
- Two-thirds of employers believe they could be doing a better job of identifying students with the specific skill set required for the job.

https://www.aei.org/wp-content/uploads/2015/04/Employer-Perspectives-on-Competency-Based-Education.pdf

The Teacher Pipeline

Just one percent planned to make CTE teaching a focus of their postsecondary pursuits

To help drive greater interest in the teaching profession among a diverse population of high-achieving students, ACT recommends the following:

- *Recruit high-achieving college students who are undecided about their future careers*
- *Promote alternative pathways to teaching.*
- *Improve educator benefits to attract and retain quality teachers.*

In "The Condition of Future Educators 2014," ACT examines which students are expressing interest an education career from administration to classroom teachers, and found that

- the number of students interested in becoming educators continues to drop significantly – just five percent of all ACT-tested graduates.
- Students interested in education have lower-than average achievement levels, particularly in STEM areas
- There continues to be a lack of men and diversity among those who expressed interest in the profession.
- In general, there is a lack of diversity among students interested in education— Seventy-one percent of ACT-tested 2014 graduates who are interested in becoming educators are white.

The study was based on the 57 percent, or 27,000 students, of the U.S. graduation class who took the ACT test in 2014.

Source: ACT

http://www.act.org/newsroom/data/2014/states/pdf/FutureEducators.pdf

Career Pathways

Just one percent planned to make CTE teaching a focus of their postsecondary pursuits

The most promising pathway programs have the following core principles:

- Pathways keep students' options open.
- The choice of which pathway is up to the student (and parents).
- There is personal support for students.
- The curriculum is integrated
- Real applications are included
- There are employer partnerships and workplace learning
- There is collaboration between high schools and post-secondary institutions
- There is district support
- There are high standards, accountability systems and data-driven decisions
- There is strong intermediary support

Career technical education must reposition itself not just as a vocational alternative to college prep but as a pathway into postsecondary programs that links degrees and credentials to occupations.

Source: MDRC

The term "college and career pathways" — or "pathways" for short — is used to refer to a range of models or approaches that attempt to create a clear path for students to follow to attain an educational and occupational goal, while learning the skills — sometimes called twenty-first century skills or transferable skills — they need to succeed in both domains.

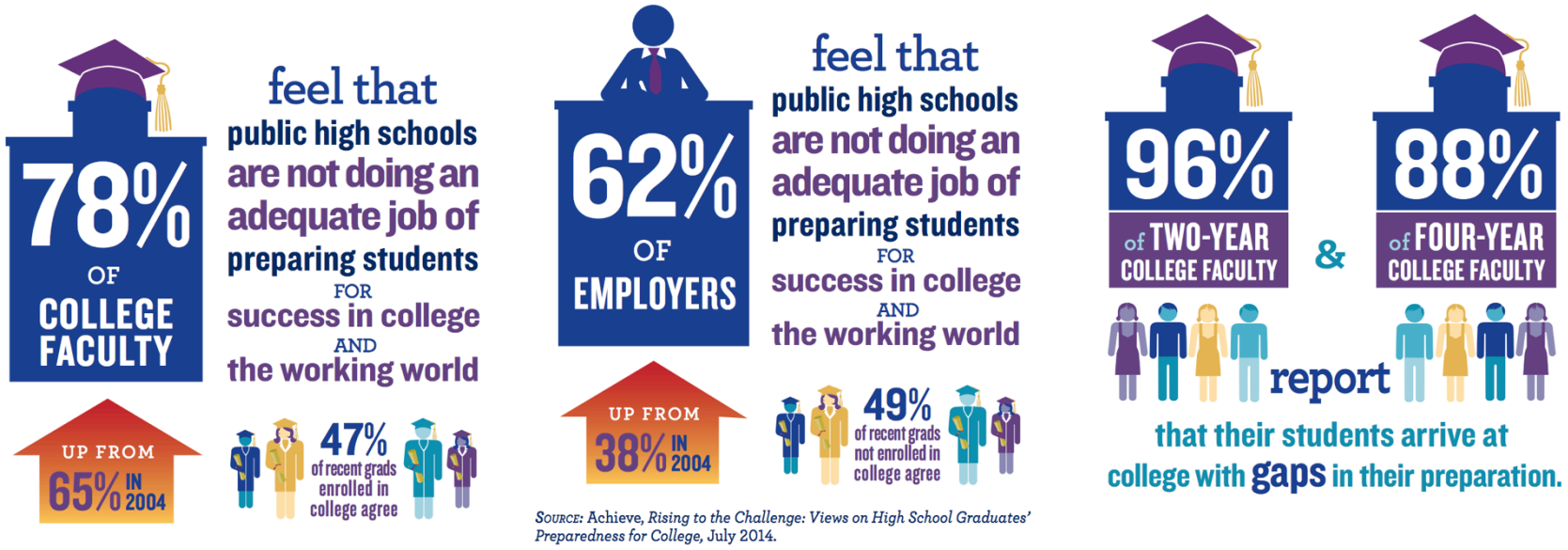
Over the years, the high school reform debate has evolved to view CTE as a means to prepare all students for success in college and careers, and CTE programs are changing along with it. More programs are emerging that blend CTE, rigorous academic coursework and opportunities for career exploration.

At least one career pathway model can be found in high schools in virtually every state and most large cities, the researchers argue, and yet still only a small percentage of students are enrolled in pathways that include the key elements of success. Much work remains to scale programs that are anchored by infrastructure that ensures high-quality implementation, sustainability and continuous improvement.

http://www.mdrc.org/sites/default/files/New_Pathways.pdf

College and Career Readiness

Just one percent planned to make CTE teaching a focus of their postsecondary pursuits



Source: Achieve, *Rising to the Challenge: Views on High School Graduates' Preparedness for College*, July 2014.

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Career technical education must reposition itself not just as a vocational alternative to college prep but as a pathway into postsecondary programs that links degrees and credentials to occupations.

Source: MDRC

Personal Cloud of Microbes

Wherever You Go, Your Personal Cloud Of Microbes Follows

First of all, "we each give off different amounts of bacteria to the air around us," he says, probably because of factors such as how much we scratch and how much we fidget. Beyond that, Meadow says, "we each give off a slightly different cocktail of those bacteria. There are just really subtle differences."

Meadow says the findings raise a number of possibilities, including, maybe, one day being able to identify a criminal by analyzing the microbial cloud he or she leaves behind at the scene.

"We know that if you live with people, and even if you just work with people, your microbial communities come to resemble theirs over time," Knight says. "And in the past we used to think that was due to touch. It may be just that you're releasing microbes into the air and some of those microbes are colonizing the people you're with."

Source: NPR

Remember Pig-Pen? The little kid from Charles Schulz's Peanuts cartoons who walked around in a cloud of dirt? Well, the human body does spew a cloud, but instead of dirt it contains millions of microorganisms.

"It turns out that that kid is all of us," says James Meadow, a microbial ecologist who led research about the microbes shadowing us during postdoctoral work at the University of Oregon. "It's just a microscopic cloud that's really hard to see."

Each of us carries around millions of microorganisms – including bacteria, fungi and viruses — on the inner and outer surfaces of our bodies. Most of them aren't dangerous. In fact, growing evidence indicates that they help us in lots of ways. Scientists call this collection of organisms our microbiome.

"A lot of the recent work on the human microbiome has revealed that we're kind of spilling our microbial companions all over our houses and our offices and the people around us," Meadow says.

http://www.npr.org/sections/health-shots/2015/09/22/441841735/wherever-you-go-your-personal-cloud-of-microbes-follows

Smart Bathrooms

Smart mirrors, health orientation, scanners and more…

"I'm just an engineer making logical deductions for tomorrow based on things we can already see happening," Dr. Ian Pearson (futurist)

In the next 10 years, Internet-of-things devices will be all over the room, and you could use smart jewelry to control them. You won't be able to hide from the scale, as it will be built into the tile or rug.

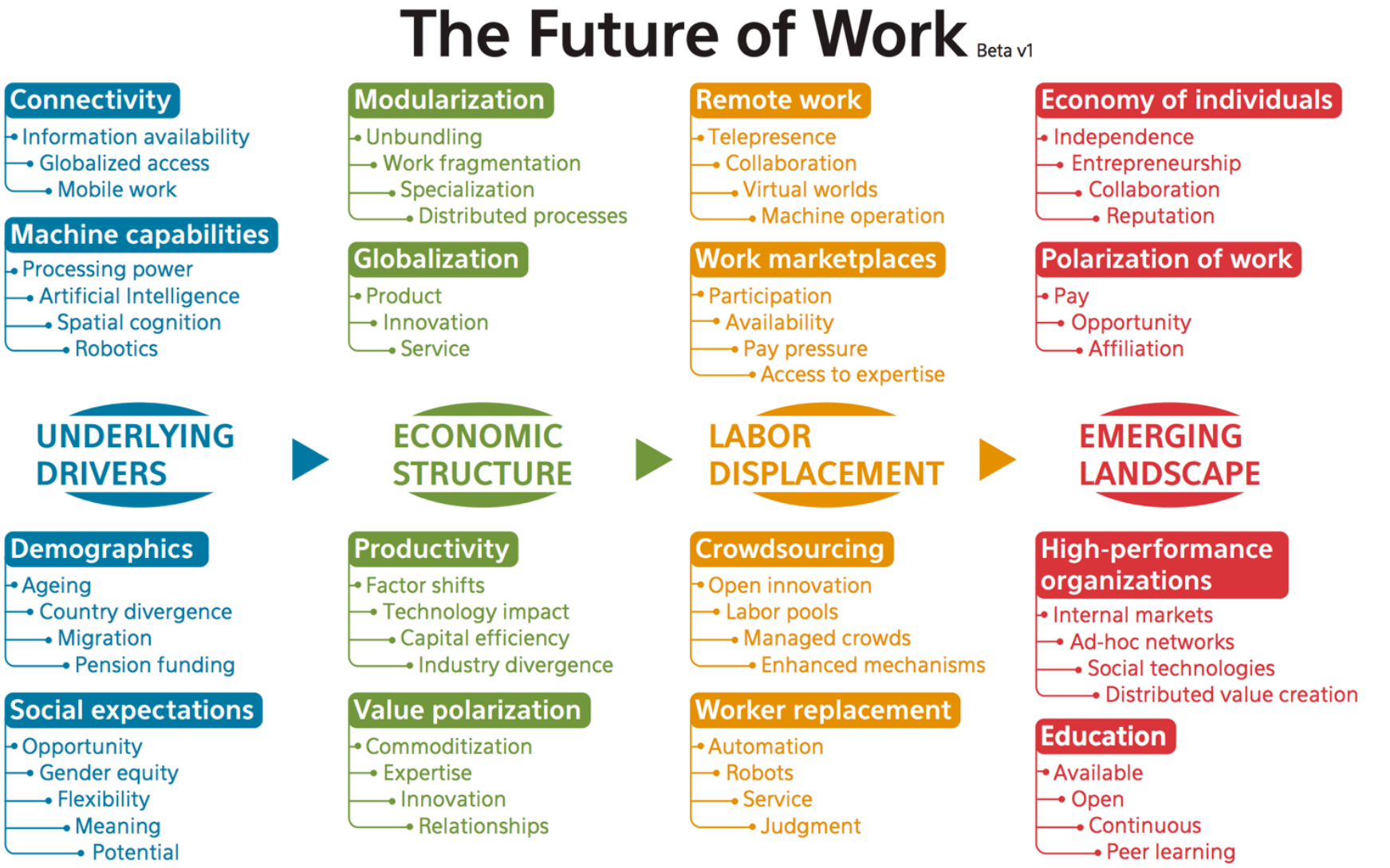
At CES 2015, Panasonic showed off its concept of a smart mirror, which could project different make-up looks on the user's face. The futurologist agrees they will have connected LED displays and high-resolution cameras. Mirrors will give you tips on shaping your brows and how to do the smoky eye (if that's still a thing in 2025), but they'll also be more health-oriented, Pearson thinks. It's how you'll communicate with your doctor, and the mirrors could perform health checks with retina scans and breath-analyzing sensors.

In 25 years, cleaning bathrooms will be a thing of the past, as we'll have robots to do the dirty work for us. They'll also bathe and groom us and will operate with enough precision to give people decent manicures. The A/C will do more than just cool down the room; it will emit perfume and eliminate odor and filter bacteria and pollen out of the air.

Source: Digital Trends

http://www.digitaltrends.com/home/futurologist-predicts-how-bathrooms-will-look-in-2040/#/7

The Future of Work



The Future of Work

What will work look like in 10 years?

Area	1995	2015	2025
Expertise	Tech driven Secretive Windows / R3 Desktops/Greenscreens Job for Life	Network driven Open Cloud Smartphones Multi-Careers	Automatrics Augmented Wearables/Ubiquitous Robots/automation Micro-Careers
Organisations	W3 Consortium Standards focus ASO Rush to digitise “assets”	Wikipedia Commons Rush to digitise “process”	International Knowledge Trading Rush to “humanise”
Norms and Conventions	Story-telling Mass Communication Multicultural Arts	Story-sharing Mass Personalisation Digital Arts	Experience-telling Mass Experience
Identity, Community and Language	Name Known Multicultural	Handle Reputation Allegiances	Profile Value Network
Education	Focus on IT Tech Industries	Focus on Business Creative Industries	Focus on Innovation Industrial Creativity

To look five years into the future, we have to look 10 years into the past.What he means by this is that change accelerates. And as we look forward into the future, to understand the changes we have ahead of us, we need to think much further back. In effect, we have to double our rear vision.

Source: Firebrand Talent Ignition

http://blog.firebrandtalent.com/2015/04/future-work-will-work-look-like-2025/

The State of US Adult Education

"Making Skills Everyone's Business: A Call to Transform Adult Learning in the United States."

As a result of a nationwide listening tour to solicit feedback on the state of U.S. adult education and the 2013 survey findings, this new report takes a deeper look at the 2013 data and outlines seven strategies to transform U.S. adult education. The recommended strategies are:

- Act collectively to raise awareness and take joint ownership of solutions
- Transform opportunities for youth and adults to assess, improve and use foundation skills
- Make career pathways available and accessible for every community
- Ensure that all students have access to highly effective teachers, leaders and programs
- Create a "No Wrong Door" approach for youth and adult services
- Engage employers to support upskilling more front-line workers
- Commit to closing the equity gap for vulnerable subpopulations

Source: US Department of Education

Figure 3. About one in six U.S. adults ages 16–65 had low literacy skills: 2012

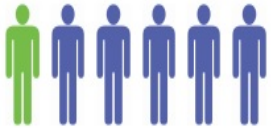


Figure 4. About one in three U.S. adults ages 16–65 had low numeracy skills: 2012

Figure 5. One-third of low-skilled U.S. adults ages 16–65 were under age 35: 2012

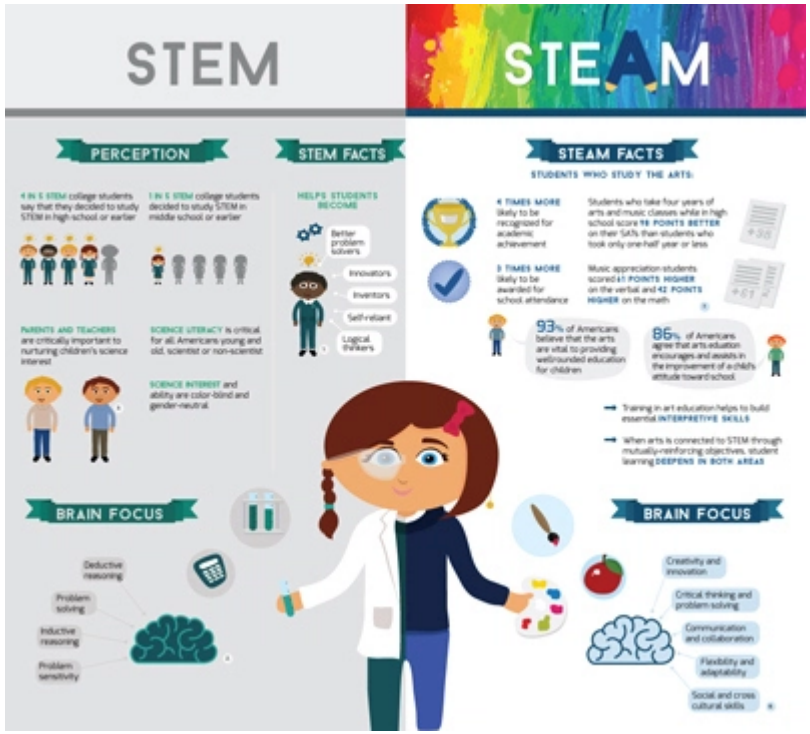
Figure 6. Two-thirds of the youngest low-skilled U.S. adults ages 16–24 were men: 2012

- ***One in six adults has low literacy skills.*** *One in three has low numeracy skills (Figures 3–4). Unfortunately, low skills are just as prevalent now as they were 20 years ago*
- ***One-third are young.*** *Low-skilled Americans are more likely than low-skilled individuals in most other industrialized countries to be young (under age 35) Two-thirds of the youngest low-skilled U.S. adults (ages 16–24) are men (Figures 5–6).*
- ***One-third are immigrants.*** *Non-English-speaking immigrants in the United States with low-educated parents are 10 times more likely to have low literacy skills (on a test in English) than native-born adults whose parents have at least a high school education (Figure 7). These odds are higher than the average for other industrialized countries, which may reflect differences in the composition of a country's immigrants—but also may indicate that the United States is not integrating immigrants as effectively as other countries through language classes or other services*

http://www.ed.gov/edblogs/ovae/2015/02/24/making-skills-everyones-business-report-launch/

STEM or STEAM

Does the A make a difference?



51% of art teachers are unhappy about what they see as the decline in art education brought about by the shift in focus. The difficulty in measuring art's contribution to academic performance has led to its under appreciation.

Source: University of Florida

Science, technology, engineering and mathematics are the center of attention in most US public schools today. The focus on STEM fields was initiated to increase global competitiveness and the project does have its merits. However, it has left the arts languishing far off in the periphery. This is quite unfortunate, as art education is known to improve academic performance.

- On average, students who study the arts for 4 years in high school score 98 points higher on the SATs compared to those who study the same for half a year or less.
- Students who took up music appreciation scored 61 points higher on the verbal section and 42 points higher on the math section.

Of the elementary schools with arts, the most common subjects revolve around music at 94% and visual studies at 83%. Only 3% offer dance instruction while 4% provide theater arts.

Training in the arts has been shown to improve creativity and innovation. Students learn to approach issues with a critical mind and a positive attitude towards problem solving. Exposure to the arts enhances communication skills, which are essential tools for collaboration. It develops flexibility and adaptability. The government recognizes these and, indeed, 48 states have adopted standards for art instructions.

http://education.arts.ufl.edu/resources/stem-vs-steam-girl/

Students of "Blended" Learning

Classrooms use a mix of technology and traditional practices

For me, blended learning means developing the habit of seeking out new ideas. And it means trying out these ideas outside of the classroom as well as within its walls. With the introduction of mobile technology and blended learning in my classroom, I have become a better teacher. I am more responsive to my students' unique learning needs and more flexible in how students express their learning. Julie Wilcott, 25 year veteran teacher.

Source: Miami Herald

"Blended learning" methodology is a combination of teacher instruction and guided online courses. There are 6 different forms of blended learning; face-to-face, rotation, flex, online lab, self-blend, online driver.

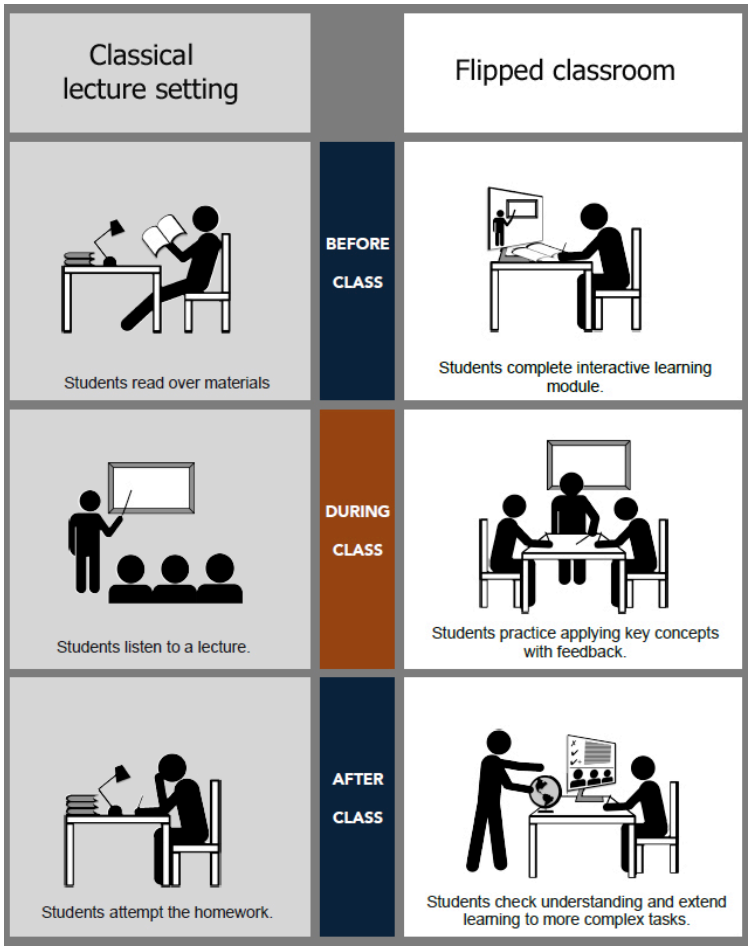
The most common scenario is a mixture of face-to-face and online lab. Teachers also have been shifting from live lectures to prerecorded. This benefits the teacher by being able to cover more material and benefits the student by being able to go at their own pace. Along with the online lecture, the student is required to review the course materials, quizzes and/or watch external videos then write about it.

Students who are partaking in these new models are being exposed to a tremendous about of skills that will further prepare them for college/workforce. This includes: technology collaboration tools (such as Google Docs), time management, accountability and note taking.

http://www.miamiherald.com/news/local/education/article29240230.html

The "Flipped" Classroom

Turning traditional classroom learning on its head



At a certain level of adoption, colleges and universities may need to take a hard look at class spaces to ensure they support the kinds of active and collaborative work common in flipped classes.

The flipped classroom is a pedagogical model in which the typical lecture and homework elements of a course are reversed. Short video lectures are viewed by students at home before the class session, while in-class time is devoted to exercises, projects, or discussions.

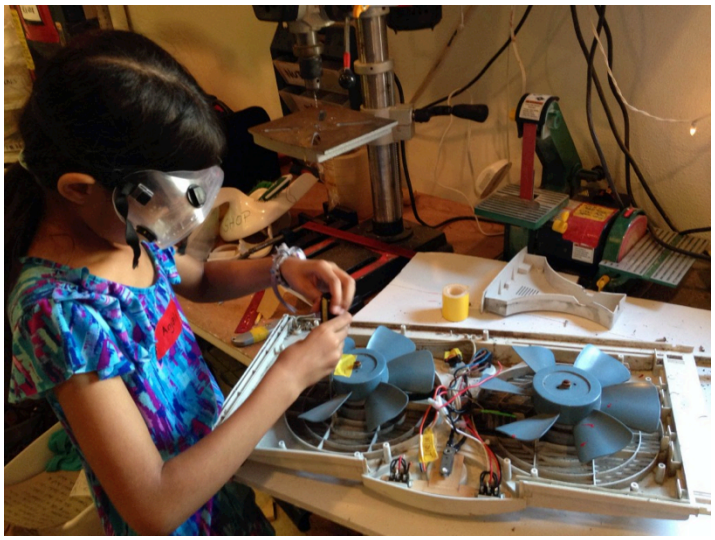
The flipped model puts more of the responsibility for learning on the shoulders of students while giving them greater impetus to experiment. Activities can be student-led, and communication among students can become the determining dynamic of a session devoted to learning through hands-on work. What the flip does particularly well is to bring about a distinctive shift in priorities— from merely covering material to working toward mastery of it.

There is no single model for the flipped classroom—the term is widely used to describe almost any class structure that provides pre-recorded lectures followed by in-class exercises. In one common model, students might view multiple lectures of five to seven minutes each. Online quizzes or activities can be interspersed to test what students have learned. Immediate quiz feedback and the ability to rerun lecture segments may help clarify points of confusion. Instructors might lead in-class discussions or turn the classroom into a studio where students create, collaborate, and put into practice what they learned from the lectures they view outside class.

Source: Educause Learning Institute

Makerspace

Makerspaces are zones of self-directed learning.



At Wheaton College, for example, the WHALE Lab (Wheaton Autonomous Learning Lab) is an interdisciplinary makerspace where students embroider, solder, weld, sculpt, or otherwise design and manufacture creative projects. The emphasis is on community-provided mutual assistance, and the output from student activity might be a robot or a knitted sweater that lights up. At the Georgia Tech Invention Studio, students can even apply for project funding in the form of Maker Grants. Multidisciplinary projects are encouraged, and winning teams must work on their projects at the Invention Studio. Completed projects are presented as portfolio pieces at the Georgia Tech Capstone Expo.

A makerspace is a physical location where people gather to share resources and knowledge, work on projects, network, and build.

Makerspaces owe a considerable debt to the hacker culture that inspired them, and many are still primarily places for technological experimentation, hardware development, and idea prototyping. But self-directed individual inventors and creative teams are increasingly using these free or fee-based services in fields other than engineering and technology.

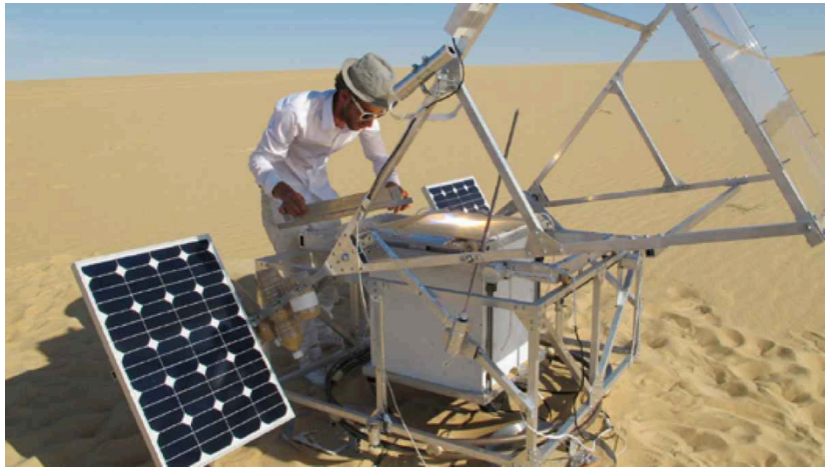
One key demand of a makerspace is that it exist as a physical location where participants have room and opportunity for hands-on work, but as these environments evolve, we may see more virtual participation.

Eventually makerspaces may become linked from campus to campus, encouraging joint project collaboration. Students who use these studios to create tangible portfolio pieces may find their work of interest to future employers. As education assessment evolves, the project work done in makerspaces may one day be accepted and reviewed for college credit in lieu of more conventional coursework.

Source: Educause Learning Institute

3D Printing's Impact on Manufacturing

Can modern manufacturing be done without a factory?



Glass is printed in the Sahara desert with sand "ink" and a solar powered 3D printer.

Most fascinating is research that shows how 3D printing can revolutionize the properties of products. Just like laminated wood (plywood) has long been used as a lighter, stronger and more flexible alternative to solid timber, 3D–printed components can exhibit properties that exceed the capabilities of traditionally manufactured components, even if they are made from the same material. Two examples of this are 3D–printed wood that does not warp,13 and the work underway to use living cells to 3D print organs needed for transplants.

Source: CSC

Since the Industrial Revolution, manufacturing has been synonymous with factories, machine tools, production lines and economies of scale. 3D printing is making its mark as it reshapes product development and manufacturing and turns individuals, small businesses and corporate departments into "makers."

Desktop 3D printing manufacturing technology can be done at home, the office, a hospital or a school, bringing manufacturing to non-manufacturers the way PCs brought computing to non-traditional environments.

At the same time, 3D printing, long used for rapid prototyping, is being applied in a number of industries today, including aerospace and defense, automotive and healthcare. As accuracy has improved and the size of printed objects has increased, 3D printing services are being used to create such things as topographical models, lighter airplane parts, aerodynamic car bodies and custom prosthetic devices. In the future, it may be possible for the military to print replacement parts right on the battlefield instead of having to rely on limited spares and supply chains.

However, it's not just about replacing the technique of how we make and get a product – it's about creating brand new products, with entirely new properties, that were not possible with the old techniques.

http://www.csc.com/innovation/insights/92142-3d_printing_and_the_future_of_manufacturing

The State of the American Workplace

US workforce engagement is stagnant

Different types of workers need different engagement strategies

- *The generations near the end of their careers tend to be more engaged than those at the beginning of their careers, according to Gallup's research.*
- *Millennials are most likely of all generations to say they will leave their jobs in the next 12 months if the job market improves.*
- *Women have slightly higher overall engagement than men.*
- *Employees with a college degree are not as likely as those with less education to report having a positive, engaging workplace experience.*

While the state of the U.S. economy has changed substantially since 2000, the state of the American workplace has not. Currently, 30% of the U.S. workforce is engaged in their work, and the ratio of engaged to actively disengaged employees is roughly 2-to-1, meaning that the vast majority of U.S. workers (70%) are not reaching their full potential — a problem that has significant implications for the economy and the individual performance of American companies. Gallup's research shows that employee engagement remains flat when left unmanaged. However, there are pockets of organizations in the U.S. that have figured out engagement, and some, like Gallup's Great Workplace Award winners, are reaping the benefits of having more than five times the ratio of engaged to actively disengaged employees.

Gallup estimates that active disengagement costs the U.S. $450 billion to $550 billion per year.

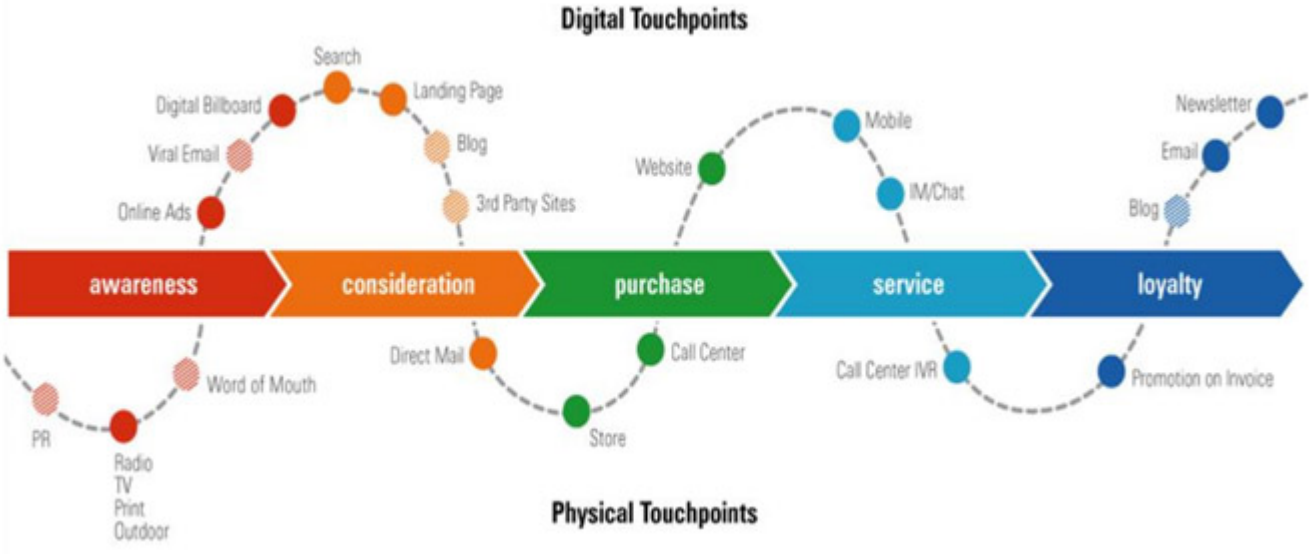
Engagement makes a different to the bottom line
Engaged workers are the lifeblood of their organizations. Work units in the top 25% of Gallup's Q12 Client Database have significantly higher productivity, profitability, and customer ratings, less turnover and absenteeism, and fewer safety incidents than those in the bottom 25%.

Source: Gallup

http://www.gallup.com/services/178514/state-american-workplace.aspx

Experience Matters

Everyone's expectations for engaged and connected experiences have risen



Consumer behavior has changed forever. Today's battle for hearts, minds, and dollars is won (or lost) in micro-moments —intent-driven moments of decision-making and preference-shaping that occur throughout the entire consumer journey.

Driven by the smart phone and visionary companies that have taken advantage of significant trends changing the fabric of society (like social, analytics, cloud and the internet of things), everyone is a lot smarter now - and demanding more (and different) types of experiences. Experiences are what differentiates one company from another.

The level of expectation for great experiences has risen for everyone (customers suppliers, employees, leader and administrators and by extension students, teachers, and school personnel). If you are not providing these kinds of experiences - for every touch point - frustration and potentially damaging results are highly likely.

Disruption and the pace of change is at an all time high - and not slowing down anytime soon. No organization is immune from being impacted. The experiences you provide will differentiate you and your organization, product, service or platform.

Source: Various