



Future Trends in Technology and Education February 2014

*A monthly futures report
for higher education,
compiled by Bryan Alexander.*

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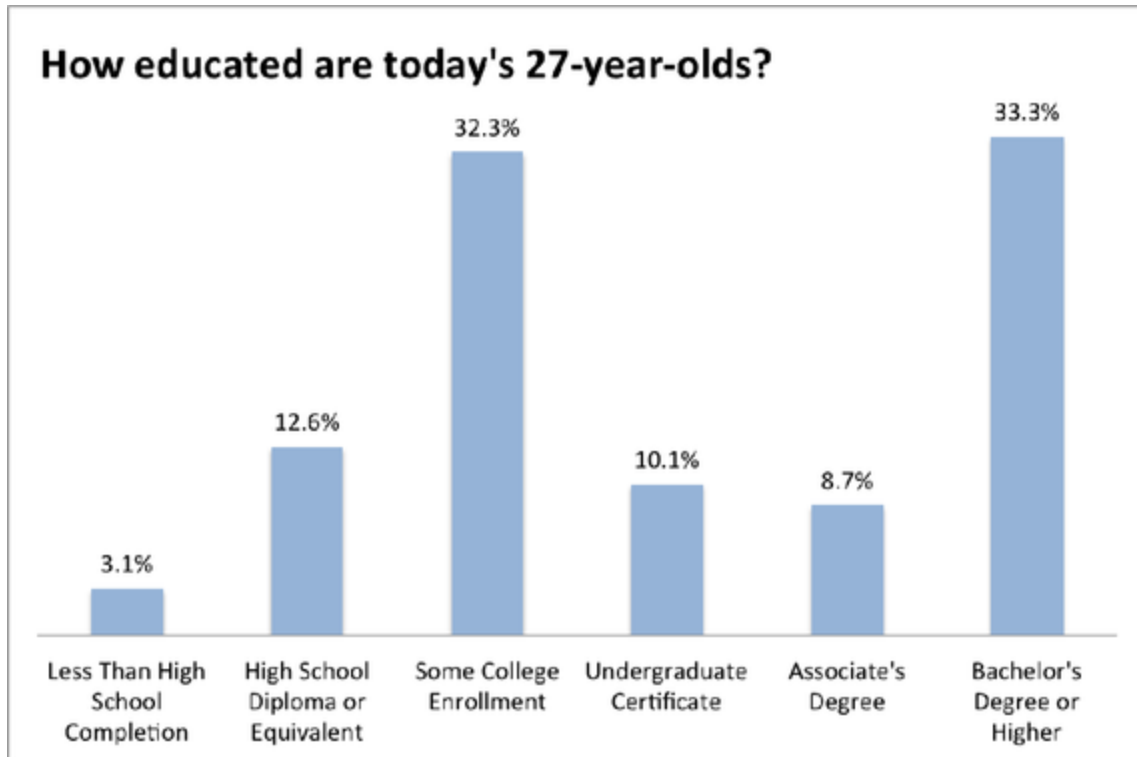
Editorial note: as we advance into 2014, I'd like to get your feedback on the structure and format of FTTE.

Would any reader and contributor prefer a shorter report that comes out twice per month, and appears as a hypertext document within email? Direct links to Web resources would replace end notes. Or would you rather FTTE continue as is, as a monthly pdf? Please let me know:

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I. Education

Demographics. The majority of American 27-year-olds have some college experience:



Alternative certification. 25% of Americans have “a professional certification, license or educational certificate apart from a postsecondary degree awarded by colleges and universities”, according to the United States Census.ⁱⁱ

Possible intergenerational tension. The World Economic Forum warns of a “generation lost”, young people frustrated by economic stress, and politically engaged.ⁱⁱⁱ

Adjunctification. An MLA session saw faculty and administrative leaders urging the continuation, if not expansion of graduate school class sizes, despite the adjunct-heavy low-tenure academic labor market.^{iv} Residents of a Chicago-area expressed their dislike of “transient academics.”^v

Executive compensation controversy. Brandeis revised its presidential compensation policies, after a high and high-profile payment to an emeritus president.^{vi}

Shared academic services. Grant funding is helping several liberal arts institutions exploring sharing academic support services.^{vii}

II. Technology

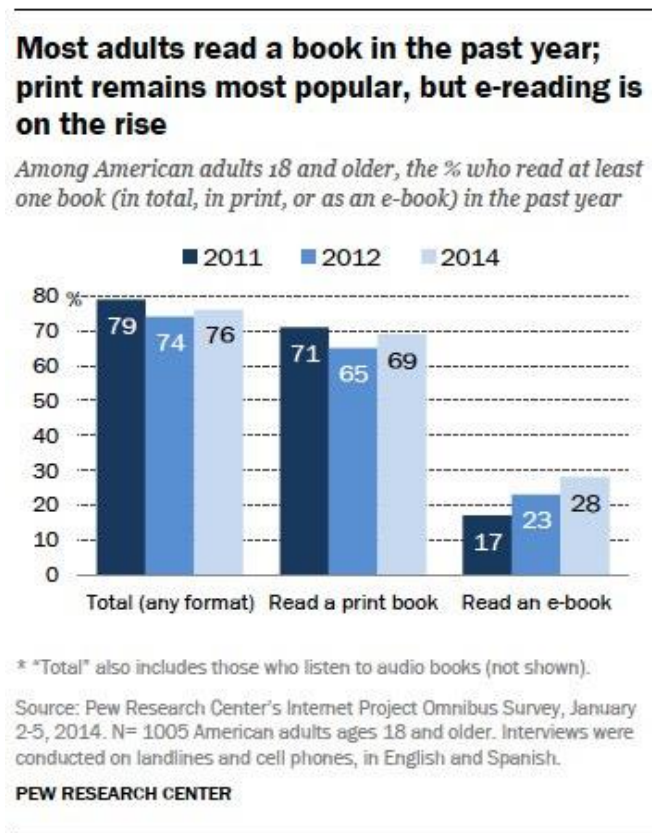
3d printing continues to innovate and grow. A Dutch initiative is printing a house.^{viii} New printers appeared offering to produce chocolate and 3d models of embryonic babies.^{ix} A Boston company figured out how to 3d print in carbon fiber.^x

Automation’s promise. IBM set up a separate Watson division, funding it with \$1 billion.^{xi}

Device ecosystem keeps growing.

- Chromebook sales grew in K-12 schools, seizing market share from Windows and Apple.^{xii}
- The Android mobile platform grew still further, winning majority market shares in Europe and Asia. Apple’s iOS platform remains most competitive in the United States, with about 43% of that market.^{xiii}
- Wearable computing: the iOptik system, combining contact lenses with glasses, approaches the market.^{xiv} Google announced a “smart contact lens” project, which includes.^{xv}

Ebooks. The proportion of Americans reading ebooks continued growing through 2013, while print books remain in play:



Barnes and Noble’s Nook ereader fared badly over the holiday shopping period.^{xvii}

III. Education and Technology

The net.generation. A recent survey of employers found increasing criticism of recent college graduates’ preparation.^{xviii}

More MOOCs and online learning. Georgia Tech’s hybrid MOOCs/campus computer science master’s program finalized its first class, after receiving nearly twice the amount of applications it usually obtains.^{xix} Dartmouth joined edX.^{xx} MOOC platform Udemy announced a 2 million student milestone.^{xxi}

Coursera announced “Specializations”, or sequences of MOOCs roughly akin to minors:



Coursera Specializations

What do you want to learn?

	Make Convincing Arguments	DUKE UNIVERSITY 3 COURSES STARTING IN JANUARY	"The interdisciplinary approach in this Specialization develops broad skills that are highly valuable for jobs, for future education and for personal development."
	Build Your Own Android App	VANDERBILT UNIVERSITY & UNIVERSITY OF MARYLAND 3 COURSES STARTING IN JANUARY	"This Specialization builds upon decades of research and development, and brings a level of collaboration to our teaching never possible before."
	Write And Produce Your Own Music	BERKLEE COLLEGE OF MUSIC 3 COURSES STARTING IN APRIL	"This Specialization provides a well-rounded foundation of skills in music theory, production, and songwriting needed for any aspiring musician today."
	How To Program in Python	RICE UNIVERSITY 3 COURSES STARTING IN MARCH	"This Specialization will appeal to students, businesses and others seeking in-depth study of programming for computer games from experts at Rice University."
	Analyze Complex Data Sets And Publish Your Results	JOHNS HOPKINS UNIVERSITY 9 COURSES STARTING IN APRIL	"There's an art and science to data analysis that requires expertise in a broad range of technologies. This curriculum fosters practical skills for this rapidly growing field."
	Key Trends in Global Affairs	LEIDEN UNIVERSITY & UNIVERSITY OF GENEVA 3 COURSES STARTING IN SEPTEMBER	"Study today's global challenges with leading academics from the universities of the two cities of international justice, peace and governance: The Hague and Geneva!"
	Find, Fix, And Prevent Cybersecurity Vulnerabilities	UNIVERSITY OF MARYLAND 4 COURSES STARTING IN SEPTEMBER	"The importance of addressing the cybersecurity challenges of today's world is increasingly critical. Our multidisciplinary Specialization provides a comprehensive introduction to this field."
	Foundations of Effective Teaching	COMMONWEALTH EDUCATION TRUST 8 COURSES STARTING IN JANUARY	"The capstone will enable students completing our foundation teaching program to enhance their thinking and practice"
	Solve Biomedical Problems at Systems Level	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI 5 COURSES STARTING IN SEPTEMBER	"Prospective students and researchers of personalized and precision medicine or systems pharmacology will learn the function of genes in the context of whole organism physiology."
	Best Practices For Teaching Online	UNIVERSITY OF CALIFORNIA, IRVINE 4 COURSES STARTING IN JUNE	"This Specialization is designed for K-12 instructors looking to expand their teaching into online environments and take advantage of the emerging educational technologies"

To find out more visit www.coursera.org/specializations



Coursera also launched Spanish-language MOOCs.^{xxiii} Business school MOOC interest is rising, as evidenced by the number of MBA classes.^{xxiv}

A negative signal: no currently-enrolled students in a group of seven universities requested getting credit for taking MOOCs.^{xxv}

MOOCs outside the US: a Brazilian MOOC platform has received government support and private investment to translate American courses into Portuguese.^{xxvi} The French government increased funding for its own MOOC platform, France Université Numérique.^{xxvii}

Coursera complied with US regulations to block access to students in countries under State Department sanctions.^{xxviii}

Social media in education. An Illinois campus saw continued conflict between its administration and a group of disgruntled faculty bloggers.^{xxix} A Canadian university suspended two student-athletes for obnoxious tweets.^{xxx} One academic association considered banning journal editors from blogging.^{xxxi} A Colorado university stripped one professor of his email account after he sent a message with violent (if historically situated) rhetoric.^{xxxii}

Crowdsourcing research. Another crowdsourcing astronomy project launched. Disk Detective asks the public to help discern stellar origin sites.^{xxxiii}

Open education. Caltech faculty voted to require publishing their research in an on-campus pen access digital repository, unless they request a waiver.^{xxxiv}

Ebooks in higher education. One California university partnered with Amazon.com to jointly manage the campus bookstore.^{xxxv}

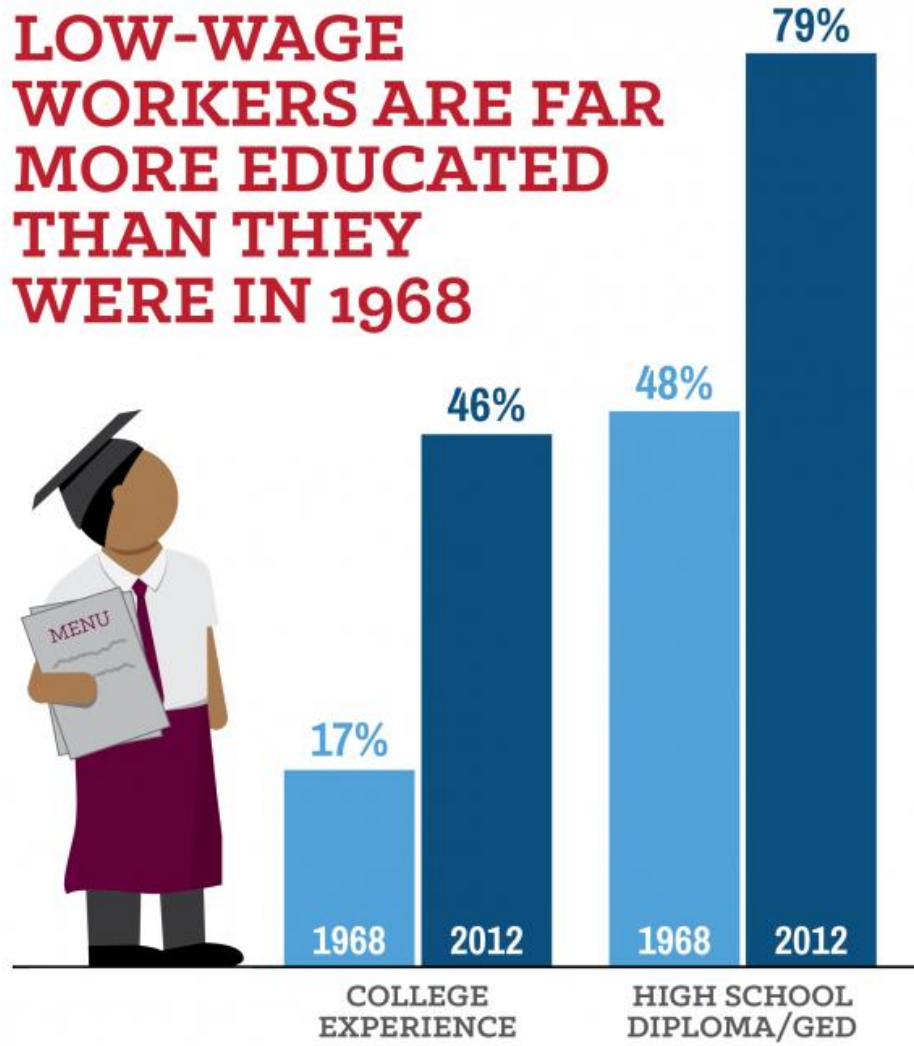
IV. The higher education bubble, continued.

"Generation lost? The generation coming of age in the 2010s faces high unemployment and precarious job situations, hampering their efforts to build a future and raising the risk of social unrest... the large number of graduates from expensive and outmoded educational systems – graduating with high debts and mismatched skills – points to a need to adapt and integrate professional and academic education."^{xxxvi}

This concept, which we began to track in early 2012, continues to build across multiple fronts. It holds that colleges are overpriced, that student demand is questionable, and both could drop together:

- Several colleges and universities have reduced their published tuitions, while others have launched guaranteed loan repayment programs.^{xxxvii}
- Franklin Pierce cut six programs, five in the humanities.^{xxxviii}

- Underemployment among recent graduates in their 20s has increased, both since the 2008 financial crisis and also since 2000, according to a recent study.^{xxxix} An increasing proportion of low-waged workers have college experience or degrees:



BUT WE'RE PAYING THEM LESS

From 1968 to 2013,
the federal minimum wage has decreased: ↓ 23%

Source: EPI analysis of education attainment from March CPS for 1968 and 2012.

Note: Data for bottom fifth of wage earners. "College experience" means went to "some college" or had college or advanced degree.

ECONOMIC POLICY INSTITUTE

- Tuition: Cooper Union’s trustees rejected a plan to continue that institution’s tuition-free past, arguing that increasing student payments is the only way forward.^{xli}
- Politics, bipartisan: president Obama hosted a meeting of college and foundation leaders, discussing ways to expand higher education access to low income Americans.^{xlii} He also expressed his desire to continue exerting pressure on higher education during the January State of the Union address.^{xliii}

Countervailing trends:

- College and university endowments saw significant growth in 2013, generally.^{xliv}

Other trends. We have been tracking the following additional trends since early 2012, but found no new developments during this month. Possible explanations: one or more are fading as future trends; some may be building slowly over time; some stories were underreported.

Those trends include:

Education: shared academic services; challenges to internships; badges progressing; possible intergenerational tensions; library budgets; changes in international education; enrollment decline continues; athletic budgets doing well.

Technology: shopping continues to migrate online; social media; new interfaces; crowdfunding growing; copyright battles continuing; cloud computing; the durability of Moore’s Law; the limits of the Web; onshoring hardware production; augmented reality’s steady march; office versus Web office; digital video rising; open source software keeps growing.

Education and technology: open access possibilities; Maker movement; digital humanities develops; faculty criticizing deployment of technology; 3d printing across the curriculum; blended learning. flipped classroom; shared academics; gaming and education; education and entrepreneurship; mobile devices for teaching; rise of the net.generation; gaming in education; campus digital security threats growing; educational entrepreneurship; video and education; big data and data analytics develop; LMSes.

About Future Trends in Technology and Education

Future Trends in Technology and Education (FTTE) is a monthly report. It surveys recent developments in how education is changing, primarily under the impact of digital technologies. Its purpose is to help educators, policy-makers, and the public think about the future of teaching, learning, research, and institutions.

Every month FTTE aggregates recent developments, checking them against previously-identified trend lines. As certain trends build in support and significance, the report recommends watching them for future impact. FTTE also notes trends which appear to be declining in significance. Every single item is backed up by footnoted research, often accessible through the open Web. Trends are also aired for feedback and development via the author's Twitter (<https://twitter.com/bryanalexander>) and blog (<http://bryanalexander.org/>).

Subscriptions are free, and open to any interested person or institution.

For more information, see <http://bryanalexander.org/future-trends-in-technology-and-education/> or <http://bryanalexanderconsulting.com/ftte-report/>.

Endnotes

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