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.\textsuperscript{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.\textsuperscript{xiii}
- Wearable computing: the iOptik system, combining contact lenses with glasses, approaches the market.\textsuperscript{xiv} Google announced a “smart contact lens” project, which includes.\textsuperscript{xv}

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

![Most adults read a book in the past year; print remains most popular, but e-reading is on the rise](image)

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

III. Education and Technology

The net.generation. A recent survey of employers found increasing criticism of recent college graduates’ preparation.\textsuperscript{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. Dartmouth joined edX. MOOC platform Udemy announced a 2 million student milestone.

Coursera announced “Specializations”, or sequences of MOOCs roughly akin to minors:
Coursera also launched Spanish-language MOOCs. Business school MOOC interest is rising, as evidenced by the number of MBA classes.

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

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

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

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

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

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

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

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.

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.
- Franklin Pierce cut six programs, five in the humanities.
Underemployment among recent graduates in their 20s has increased, both since the 2008 financial crisis and also since 2000, according to a recent study. An increasing proportion of low-waged workers have college experience or degrees:

**LOW-WAGE WORKERS ARE FAR MORE EDUCATED THAN THEY WERE IN 1968**

<table>
<thead>
<tr>
<th>Year</th>
<th>College Experience</th>
<th>High School Diploma/GED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td>17%</td>
<td>48%</td>
</tr>
<tr>
<td>2012</td>
<td>46%</td>
<td>79%</td>
</tr>
</tbody>
</table>

**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.
• 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.

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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://brynanalexander.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/.

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Endnotes


xii Rolfe Winkler, "Chromebooks Take Other Mobile PCs to School", Wall Street Journal,


