Future Trends in Technology and Education 2013 trend summary

A special FTTE report, compiled by Bryan Alexander.

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A tag cloud of terms from all 2013 FTTE reports

Editorial note: this is a pilot offering from FTTE, a first-ever year-end trends summary. Instead of noting and analyzing trendlines each month, this special issue summarizes the big picture,

with anticipations of 2014. There are few references in this document, as it relies on sources identified in previous reports.

I'm writing this on request of several thoughtful FTTE readers, in addition to a productive NITLE Shared Academics ™ session. My thanks to each contributor.

Let me know if this year-end wrap-up is an FTTE service you'd like to see in the future.

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<p align="center">I.   Education</p>

What education trends loom largest from 2013?

Demographics. The decline of the American 1-18 population drove traditional-age campuses to compete more fiercely for a dwindling market. Recruiters have turned to or enhanced their focus on new geographical areas, including the American west and east Asia.

Enrollment decline. In addition to the demographic problem of a shrinking pool of *available* students, the *actual* number of enrolled students has declined overall across the past three years.
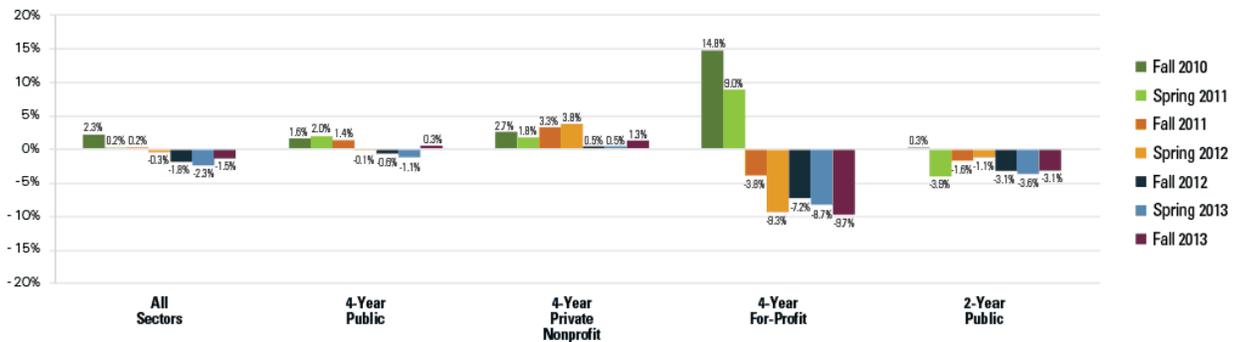
[1]

Changes in international education. Many countries continued to develop their higher education sectors, while sending large numbers of students abroad. American institutions continued to build or develop campuses in other nations.

Alternative certification.   The drive to develop new forms of certifying learning continued, from badges to registering lifelong learning.

[1] National Student Clearinghouse Research Center, "REPORT: Current Term Enrollment Report – Fall 2013", December 11, 2013, accessed December 12, 2013, http://nscresearchcenter.org/currenttermenrollmentestimate-fall2013/.

Adjunctification. The majority of American college and university instruction was done by adjuncts, perhaps to an increasing degree. Labor organization occurred in urban area, and seems likely to continue in 2014, given adjuncts' status and media stories of abuse.

Which trends turned out to be minor or were simply very quiet?

Executive compensation controversy. While several cases of faculty and public outrage occurred, colleges and universities generally seem committed to high compensation levels.

Athletic budgets doing well. Despite financial stresses to higher education, institutions remain committed to supporting student athletics programs.

Internship reform. Internships are still perceived as vital career steps for graduating students.

Library budgets. Most institutions have apparently maintained their library budgets at levels consistent with recent years, despite overall financial pressures and ever-rising journal prices.

Intergenerational tensions. Possible labor tensions between young and senior faculty seem not to be expressed in generational terms, or with acrimony.

II. Technology

Which technology trends dominated 2013?

3d printing continues to innovate and grow. Every week sees new uses of 3d printing, as that technology develops as a consumer and industrial good.

New interfaces. The mouse and keyboard have been shouldered to one side by the rapid rise of new forms of computer interaction, including voice (think Siri and "OK Glass), touchscreen, and hands-free gestures (Xbox Kinect). While keyboard and mouse remains widely used, it is no longer the interface for a supermajority of use cases.

Social media. The social Web moved from strength to strength, taking up an ever-increasing amount of our time and digital behaviors. Twitter, Facebook, blogging continue to have enormous user bases, while Pinterest races up to join them, and Google+ steadily grows.

Automation's promise. Many discussions of the global economy turned to issues of automating human activities by robotics, software, or both. IBM's Watson took up new functions.

Cloud computing. This form of outsourcing data and computation is no longer seen as a wildly new thing. Instead, many users and a growing number of institutions simply use cloud services for a variety of functions.

Copyright battles continue. Legal fights over fair use, first sale, patents, and other intellectual property issues raged on.

Device ecosystem keeps growing. The number and variety of hardware devices kept churning out new configurations and roles. Highlights included:

- The shift from PCs to a mix environment of PCs plus mobile devices, a/k/a the post-PC world. Smartphones and tablets rose.
- The Android and iOS operating systems (Google's and Apple's, respectively) solidified their positions as world leaders.
- Wearable computing: Google Glass and other devices have explored the limits of where humans will use hardware.

eBooks continue to grow and develop. eBooks established a huge presence in the book world. It is unclear if that role will expand or plateau in 2014.[2]

Digital video grows. From YouTube to Netflix streaming to videoconferencing, humanity kept desiring and making more networked video.

What trends haven't been so clearly evident?

Augmented reality. This technology is growing quietly, more for location than visualization uses.

Challenges to Moore's Law. The capabilities of computer speed and memory keep rising.

The Web plateau. The Web remains a powerful force in human life, despite the rise of non-Web ecosystems, namely apps and off-Web streaming content.

3d tv. The much-ballyhooed technology lost many prominent supporters.

Onshoring hardware production. Despite several experiments, technology companies generally prefer to source production in countries other than the United States.

III.   Education and Technology

What were the leading trends in the connection between education and technology?

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[2] See discussion here: http://bryanalexander.org/2013/08/15/have-ebooks-plateaued/

MOOCs and online learning. MOOCs continued to dominate news and discussions, sometimes meeting with failure, at other times with enormous numbers of students. More campuses (both from the United States and elsewhere) partnered with MOOC providers to offer courses. It is unclear to what extent Udacity's noteworthy pivot away from higher education will inspire a broader MOOC turn. It is also unclear if universities (and employers) will start accepting MOOC completion evidence for credit.

Online education in general seems to keep increasing in number of students and courses.

Open education. The number of open access journals increased. The amount of open education content seems to be growing.

Social media in education. Students, staff, and faculty continued to use social media for a variety of purposes. Some of these involved controversy, usually when a poster's expression collided with institutional leaders' desires. Overall, social media has matured into a major communications channel for education.

Maker movement. This tinkering and education movement grew in American culture, with some presence on campuses.

Digital humanities develops. This integration of technology and academic disciplines continues to grow, without much controversy or drama.

Faculty criticizing deployment of technology. Faculty members have taken to resisting their institutions' use of technology either as individuals or through departments and larger bodies, usually focused on the perceived threat of some form of distance learning to the academic enterprise and the professoriate.

Education and entrepreneurship. The number of business start-ups emerging from academia or aimed at serving educational needs grew steadily, while concerns about the impact of business funding on higher education rose.

Mobile devices for teaching. Users increasingly spending more time with mobile devices (see "device ecosystem", above) have taken to consuming (and producing) academic content with them. Campus IT departments have been developing new support strategies.

3d printing across the curriculum. This new technology is seeing uses in many disciplines.

Blended learning. Some campuses have emphasized this combination of face-to-face with online learning as a strategic response to the challenge of distance learning.

Campus digital security threats growing. Colleges and universities have not been immune to the world's digital security challenges.

Video and education. Digital video (production and especially consumption) and videoconferencing seem to be on the rise.

Which technology-and-education trends have not been so strongly supported in 2013?

Shared academics. There has not been much evidence of campuses increased their use of shared academic technology services. Cloud computing (see above) may have taken up that off-campus resource need instead.[3]

Gaming and education. This field seems to be growing incrementally at best.

Big data and data analytics. There has been much discussion and anticipation of these technologies, but few implements so far.

LMSes. This staple of campus computing continues to exist, with a slight tendency towards the more social-media-oriented style exhibited by Instructure's Canvas.

IV. The higher education bubble, continued.

I have tested this concept throughout 2013 using multiple trends and analyzes. My verdict is… the bubble might be happening.

A series of major trends supported it:

- College and university tuition continued to rise, but received strongly negative reactions and elicited some tuition freeze experiments.
- Student debt rose throughout 2013, inspiring widespread anxiety.
- A number of institutions took drastic steps to stave off financial crisis, including merging with other campuses, ending academic programs, and laying off faculty.
- The number of students taking classes went down across many sectors (see "Enrollment decline" above).
- Some graduate programs suffered badly in 2013, most notably law schools, who saw declining revenues, applicants, graduates, and jobs.
- Political pressures remained steady. Some of this occurred in partisan terms, as Republicans extended their criticism of public K-12 to all of higher education. Otherwise we saw Democrats joining in, from a presidential charge to build a new institutional assessment system to high-profile governors and mayors calling for reducing higher education fees.

At the same time several powerful trends countered the preceding:

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[3] I am indebted to Shel Sax for this insight.

- The college premium remains in evidence, despite anxieties about rising tuition and student debt.
- College and university endowments grew in 2013.

In other words, Americans think college is too expensive and fewer of us enroll, but the benefits remain and no alternatives have seriously challenged higher education. 2014 will likely see these trends continue to struggle against each other.

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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://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/.