

MOOCs: A path to success or a good way to ruin your weekends?

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Overview

- MOOC Overview
 - Status and the Literature
- MOOCs for Professional Development
 - Possibilities, Opportunities, and Challenges
- Information Visualization MOOC
 - Science of Science (Sci²) Tool

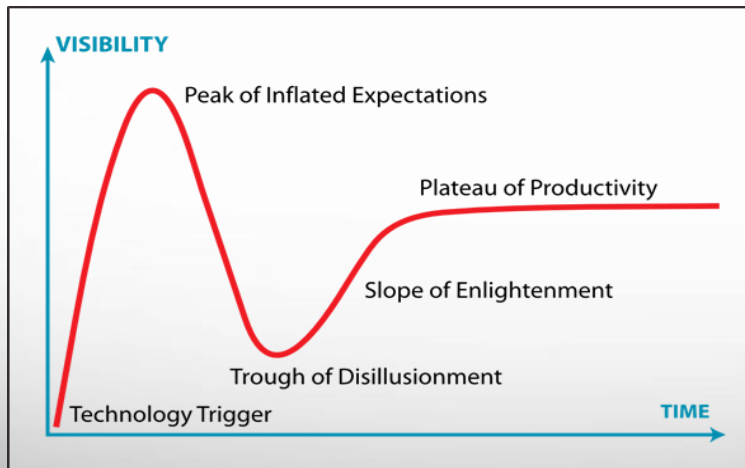
Background

- MOOC - Massive Open Online Course

2008: First MOOC (CCK08)

2012: “Year of the MOOC”

- Gartner Hype Cycle



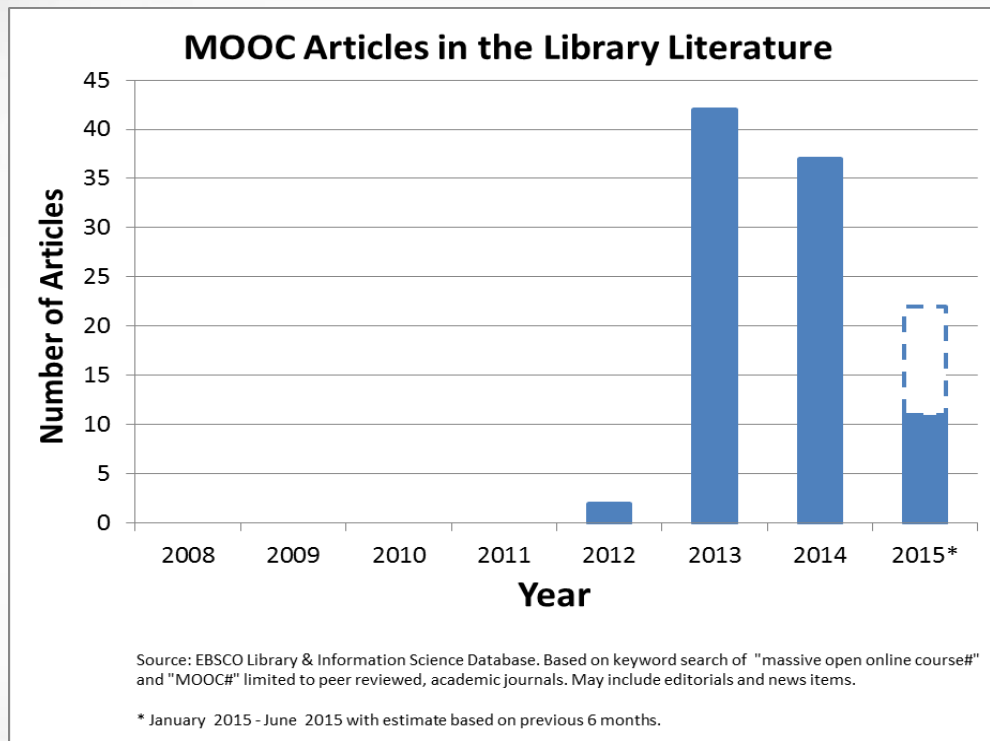
Source: © Jeremy Kemp CC BY-SA

MOOCs in Texas*

- Rice University
Coursera/EdX - 44 courses
- University of Houston System
Coursera – 9 courses
- University of Texas System
EdX – 16 courses

* Based on a search of Coursera, EdX, and Udacity.

Library Literature on MOOCs

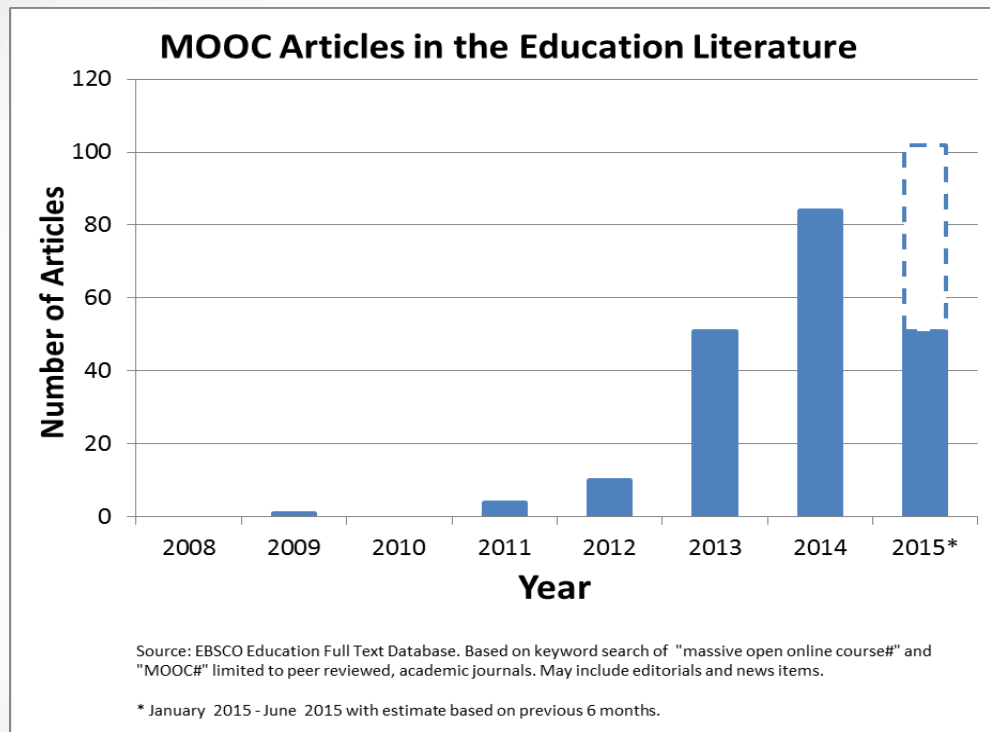


Focus on roles and challenges:

- Content
- Copyright
- Design
- Info Literacy
- Licensing
- Reference

A few focused professional development (PD) ...

Education Literature on MOOCs



- Increasing(?)
- Research Oriented
- More Articles on PD

MOOCs, Librarians, and PD

- Brief Mentions of PD
 - Sampson & Street, 2014
 - Signornelli & Hovious, 2014
- Anecdotal
 - Bond, 2013
 - Ecclestone, 2013
 - Fitzgibbons & Kelly, 2013
- LIS MOOCs and PD
 - Newman, 2014
 - Stephens, 2013
 - Stephens & Jones, 2014

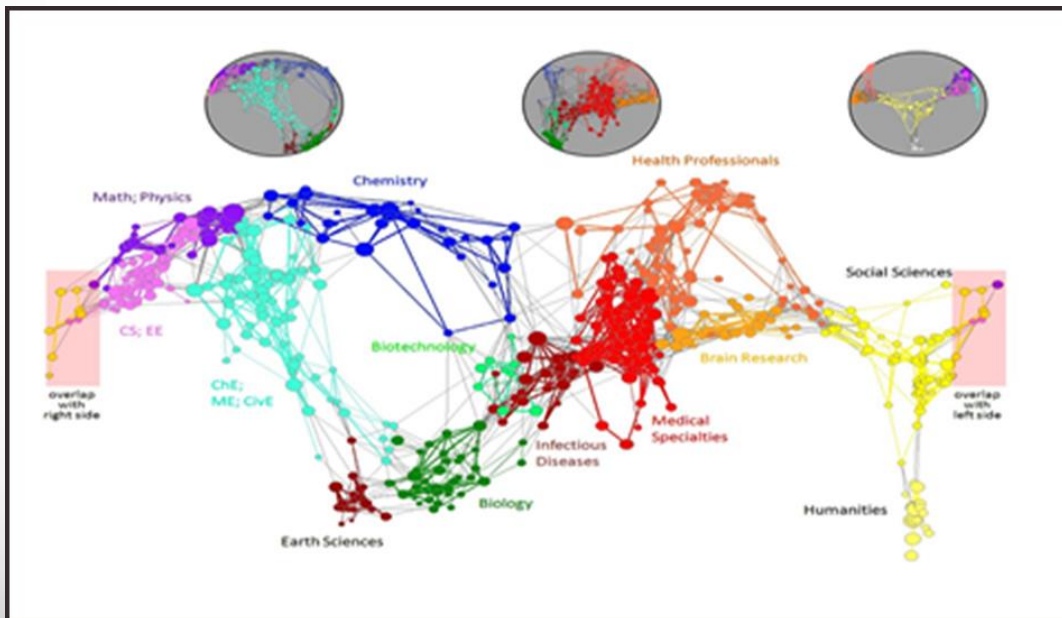
MOOCs - Opportunities & Challenges

New skills, knowledge, and increased subject expertise

<u>Pros</u>	<u>Cons</u>
Low Barriers	Pace
Low Cost	Scheduling
Low Stakes	Feedback
Learn from the Best	Instructional Support
“Flexible Engagement”	Technical Issues
Participant Interaction	

Information Visualization (InfoVis)

“...computer-aided process that aims to reveal insights into an abstract phenomenon by transforming abstract data into visual-spatial forms.” (Chen, 2002, p. 1)



Source: © Börner K, Klavans R, Patek M, Zoss AM, Biberstine JR, Light RP, et al. (2012) Design and Update of a Classification System: The UCSD Map of Science. *PLoS ONE* 7(7): e39464. CC BY-NC-SA

Information Visualization MOOC

Katy Börner
Professor of Information Science
Indiana University

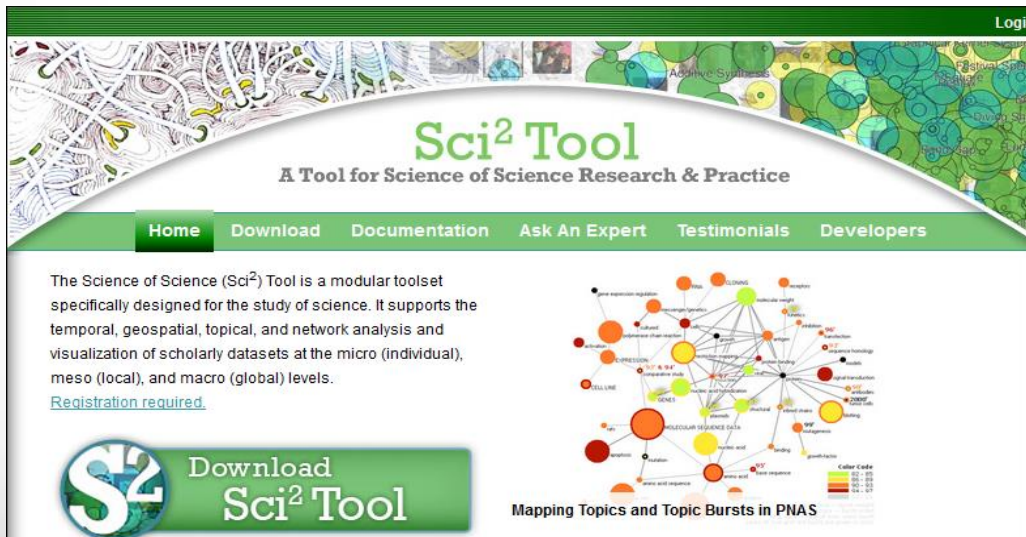
Information Visualization MOOC (IVMOOC)
Taught in 2013, 2014, and 2015

Topics covered:

- Data analysis algorithms to enable extraction of patterns and trends in data
- Temporal, geospatial, topical, and network visualization techniques
- Discussions of systems that drive research and development.

Science of Science (Sci²) Tool

“The Science of Science (Sci²) Tool is a modular toolset specifically designed for the study of science. It supports the temporal, geospatial, topical, and network analysis and visualization of scholarly datasets at the micro (individual), meso (local), and macro (global) levels.” (Sci² team, 2009)



The screenshot shows the homepage of the Sci² Tool. At the top, there is a navigation bar with a "Login" link. Below it is a banner with the Sci² Tool logo and the tagline "A Tool for Science of Science Research & Practice". A secondary navigation bar includes links for "Home", "Download", "Documentation", "Ask An Expert", "Testimonials", and "Developers". The main content area features a descriptive paragraph about the tool's capabilities, a "Registration required" link, and a prominent "Download Sci² Tool" button. To the right, there is a network visualization titled "Mapping Topics and Topic Bursts in PNAS" with a color scale legend.

- Free Client Software
- Documentation
- Open Source

Sci² Team. (2009). Science of Science (Sci²) Tool. Indiana University and SciTech Strategies, <https://sci2.cns.iu.edu>.

IVMOOC Group Project

- *Isis* – Official Journal of the History of Science Society
- Visualization of *Isis* author locale over the last 100 years
- Group: Digital Humanists, Librarians, and a Chemist
- Temporal/Geospatial (1913-1937 and 1988-2012)
- Topical Analysis (1913-2012)

IVMOOC Group Project - Visualization

One Hundred Years of *Isis*

David E. Hubbard (Texas A&M University), Anouk Lang (University of Strathclyde), Kathleen Reed (Vancouver Island University),
Anelise Hanson Shout (Davidson College) and Lindsay D. Troyer (Colorado State University)

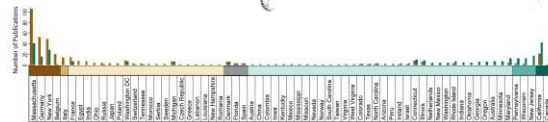
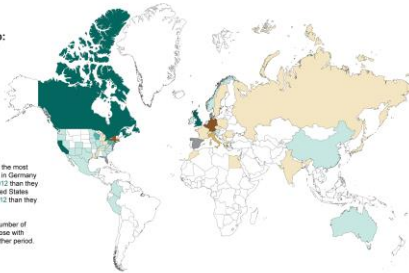
Changes in *Isis* Authorship: 1913-1937 to 1988-2012.

This map and chart show geographic shifts in the authors' locations across two time periods of 25 years each: 1913-1937 and 1988-2012.

Countries and states listed in red had a greater number of articles published in the 1913-1937 period, while those listed in green had a greater number published in the 1988-2012 period.

Germany and the United States experienced the most extreme shifts in authorship. Authors located in Germany published 27 fewer articles between 1988-2012 than they did in 1913-1937. Authors located in the United States published 31 more articles between 1988-2012 than they did in 1913-1937.

Countries and states in blue had the same number of published articles in both periods, while those with no color (i.e., white) had no publications in either period.



Thematic trends over time

In their early years, the journal showed considerable interest in non-western cultures. The appearance of Arab and Egyptian in the 1920s reflect Sartre's interest in that decade, in the 1970s, Asia is interest shifted focus to the West. German emerged as scholars began to pay attention to 19th-century German universities, which supported *Wissenschaft* the study of science that involves systematic research and teaching, and from which grew many of the American research universities that became the primary focus for American scientific research for many years.

Interest in non-western culture moved from their roots in the 1920s, as history of science practitioners paid attention to the roots of the Scientific Revolution in medieval Europe, until interest in the 19th century in the 1980s to the 1990s is further evidence of the attention to German universities.

There was a shift in attention from studies of individuals to an interest in collective and endogenous over the life of the journal, with the focus also shifting from the mid 20s to the 60s. However, John refers to a number of individuals from a range of fields (e.g., John Quincy Adams, John Barrow, John Wesley, James Burdett from the 50s to the 60s, and Newton from the late 50s to the mid-60s).

From the mid-1970s on, however, bursts appear that suggest an interest in collective enterprises (publicly-sourced laborator(ies), social and museum. This shift might illustrate the interest versus exterior debates of the 1970s, in which attention to the published work alone was challenged for neglecting the context in which science is carried out.

Thomas Garver passed away in 1986, followed by a controversial burial of articles about him and his legacy.

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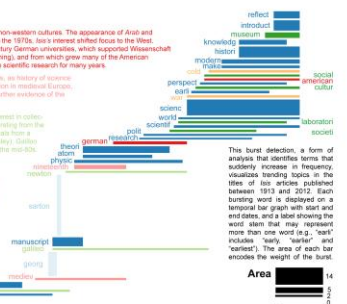
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This burst detection, a form of analysis that identifies bursts that suddenly increase in frequency, visualizes trending topics in the titles of *Isis* articles published between 1913 and 2012. Each bursting word is displayed on a temporal bar graph with start and end dates, and a label showing the word stem that may represent more than one word (e.g., "east" includes "early," "later," and "eastern"). The area of each bar encodes the weight of the burst.

<http://cns.iu.edu/images/teaching/ivmooobook14/8.5.jpg>

Final Thoughts

- Interest in MOOCs appears to have waned within the library literature, but has increased in the education literature based on number of publications.
- MOOCs present a host of opportunities and challenges.
- Professional development involving acquiring new skills and knowledge is one of those opportunities.

References

Bond, P. (2013). Massive Open Online Courses (MOOCs) for professional development and growth. C. Smallwood, R. Harrod, & V. Gubnitskaia (Eds.), *Continuing education for librarians*, Jefferson, North Carolina: McFarland & Company.

Börner, K., & Chen, C. (2001). Visual interfaces to digital libraries: The First International Workshop at the First ACM+IEEE Joint Conference on Digital Libraries. *SIGIR Forum*, 35(1), 12-15.

Card, S., Mackinlay, J., & Shneiderman, B. (1999). *Readings in information visualization: Using vision to think*. San Francisco, CA: Morgan Kaufmann.

Chen, C. (2002). Information visualization. *Information Visualization*, 1(1), 1-4. Retrieved from <http://ivi.sagepub.com/content/1/1/1.full.pdf+html>

Ecclestone, M. (2013). MOOCs as a professional development tool for librarians. *Partnership: Canadian Journal of Library and Information Practice and Research*, 8(2), Retrieved from <https://journal.lib.uoguelph.ca/index.php/perj/article/view/2797>

Fitzgibbons, M., & Kelly, K. (2013). MOOCs as online development for law librarians. *Australian Law Librarian*, 21(4), 245-252.

Newman, W. (2014). International library advocacy and MOOCs. *International Leads*, 28(4), 1-9.

References (con't)

Sampson, S., & Street, L. (2014). The Promise and Perils of Massive Open Online Courses. *AALL Spectrum*, 18(4), 9-11.

Sci2 Team. (2009). Science of Science (Sci2) Tool. Indiana University and SciTech Strategies, <https://sci2.cns.iu.edu>

Signorelli, P., & Hovious, A. (2014). MOOCs: Two takes on how massive open online courses (MOOCs) may affect librarians and library services. *American Libraries*, 45(5), 34-35.

Stephens, M. (2013). MOOCs for LIS professional development: Exploring new transformative learning environments and roles. *Internet Learning*, 2(2), 71–88. Retrieved from <http://digitalcommons.apus.edu/cgi/viewcontent.cgi?article=1021&context=internetlearning>

Stephens, M., & Jones, K. (2014). MOOCs as LIS professional development platforms: Evaluating and refining SJSU's first not-for-credit MOOC. *Journal of Education for Library and Information Science*, 55(4), 345-361.

Questions?