

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

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Texas STEM Librarians' Conference 2015

July 23-24, 2015

University of Texas at Arlington Libraries

# Overview

- MOOC Overview
  - Status and the Literature
- MOOCs for Professional Development
  - Possibilities, Opportunities, and Challenges
- Information Visualization MOOC
  - Science of Science (Sci<sup>2</sup>) Tool

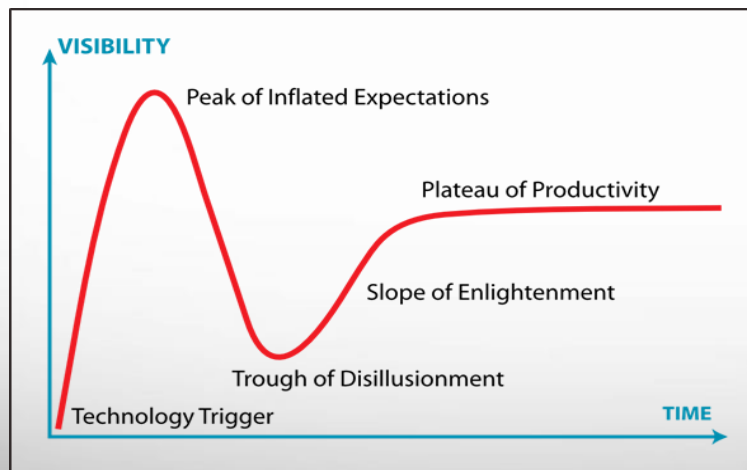
# Background

- MOOC - Massive Open Online Course

2008: First MOOC (CCK08)

2012: “Year of the MOOC”

- Gartner Hype Cycle



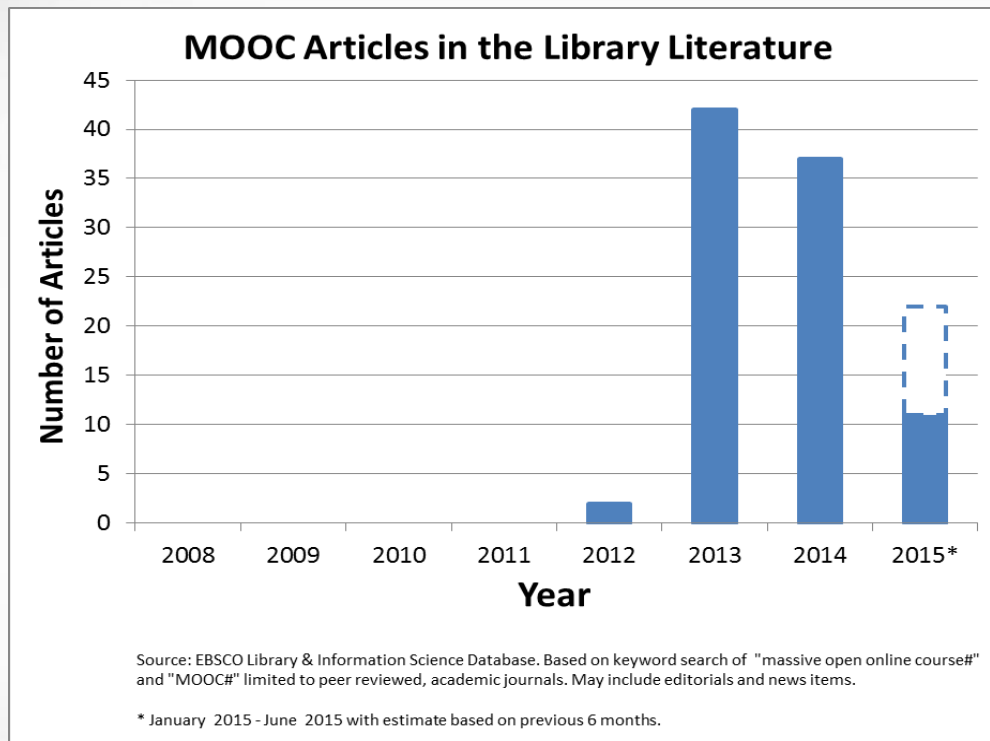
Source: © Jeremy Kemp CC BY-SA

# 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

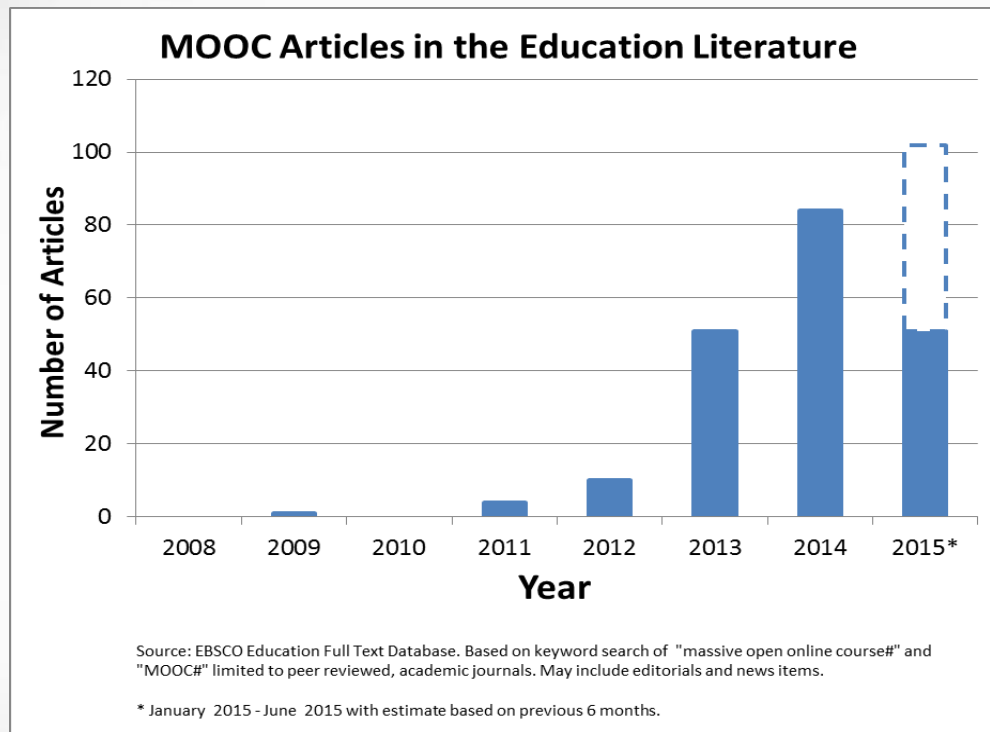


Focus on roles and challenges:

- 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

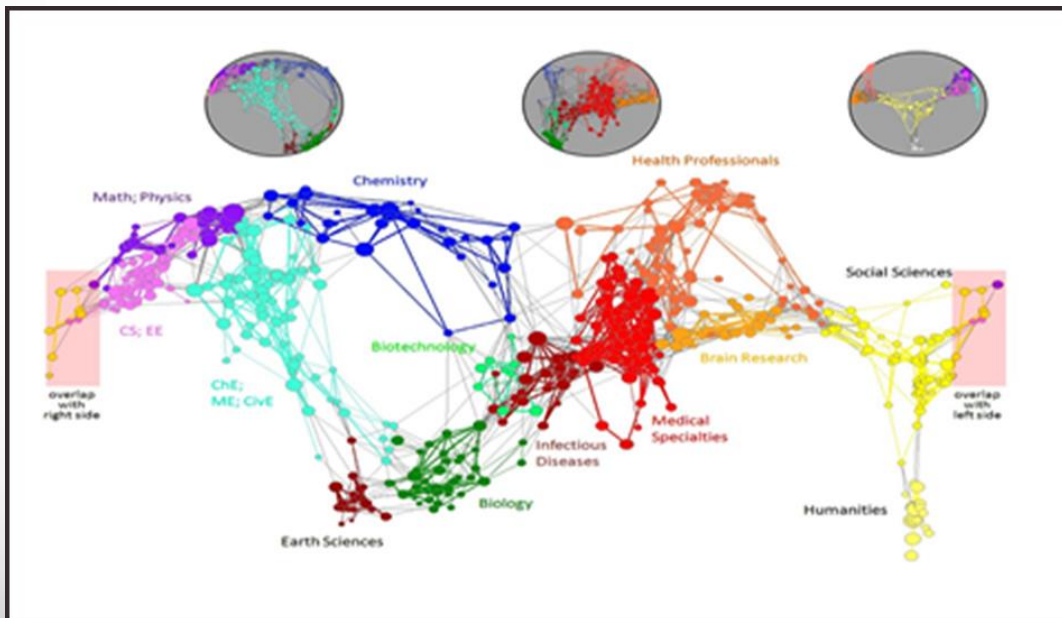
New skills, knowledge, and increased subject expertise

<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

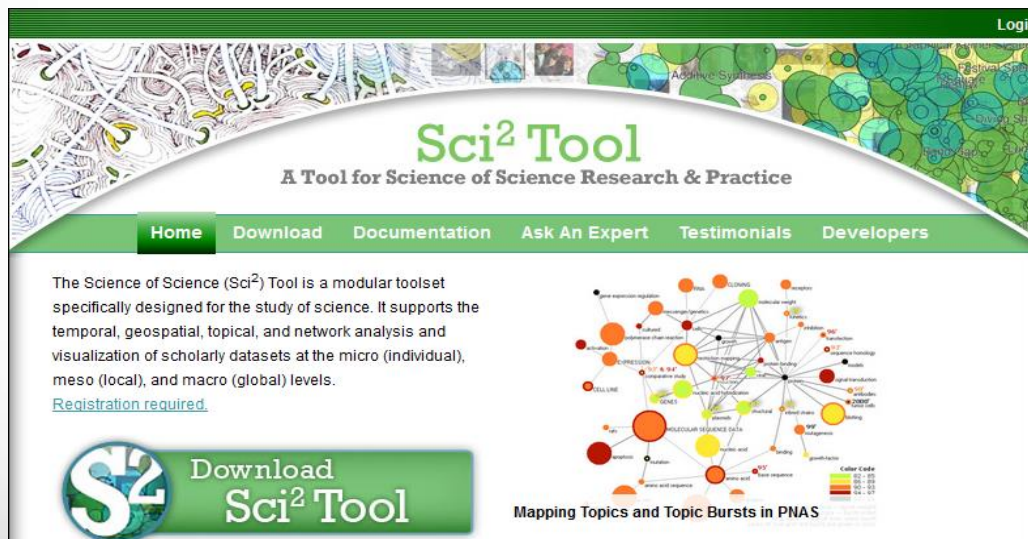
Information Visualization MOOC (IVMOOC)  
Taught in 2013, 2014, and 2015

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 (Sci<sup>2</sup>) Tool

“The Science of Science (Sci<sup>2</sup>) 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.” (Sci<sup>2</sup> team, 2009)



The screenshot shows the homepage of the Sci<sup>2</sup> Tool. At the top, there is a navigation bar with a "Login" link. Below this is a banner with the Sci<sup>2</sup> 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 Sci<sup>2</sup> Tool" button. To the right, there is a network visualization titled "Mapping Topics and Topic Bursts in PNAS", which displays a complex graph of nodes and edges, with a color scale legend indicating values from 0 to 100.

- Free Client Software
- Documentation
- Open Source

Sci<sup>2</sup> Team. (2009). Science of Science (Sci<sup>2</sup>) 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)

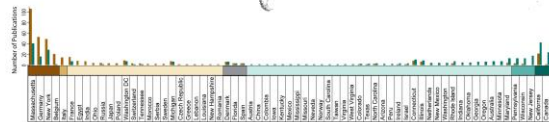
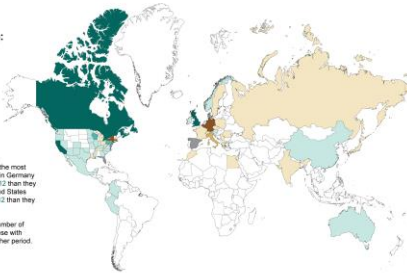
### Changes in *Isis* Authorship: 1913-1937 to 1988-2012.

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 blue 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 grey 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 *Isis*'s 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, Isis 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 rose from their roots in the 1920s, as history of science practitioners paid attention to the roots of the Scientific Revolution in medieval Europe, and returned in the 1980s century in the 1980s to the 1980s as further evidence of the attention to German universities.

There was a shift in attention from studies of individuals to an interest in collective line evidence 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, John Burdett from the 18th to the 19th, and Newton from the late 18th to the mid-19th).

From the mid-1970s on, however, bursts appear that suggest an interest in collective enterprises: political, scientific, 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 1988, followed by a controversial burial of articles about him and his legacy.

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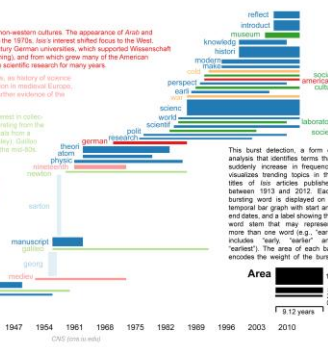
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<http://cns.iu.edu/images/teaching/ivmooobook14/8.5.jpg>

# 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.



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# Questions?