

Big Education in the Era of Big Data

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Our Education System

Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid.



Velocity

VALUE!

Veracity



Big Education on Lifelong Learning

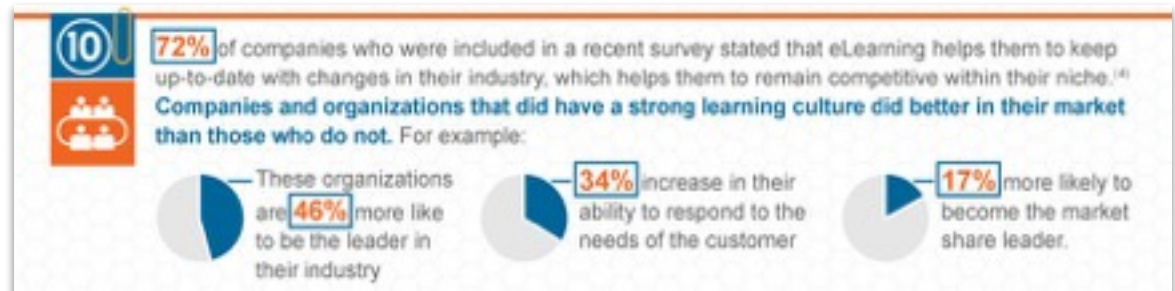
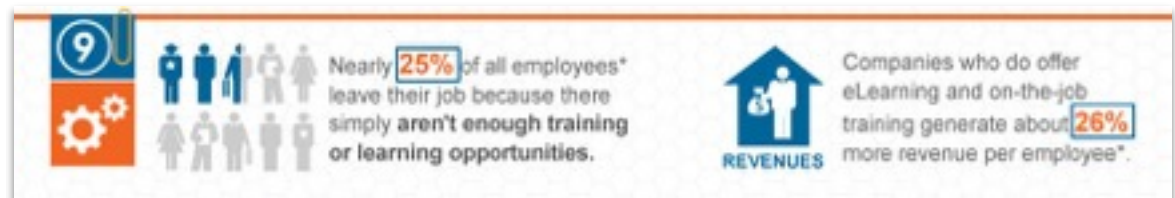
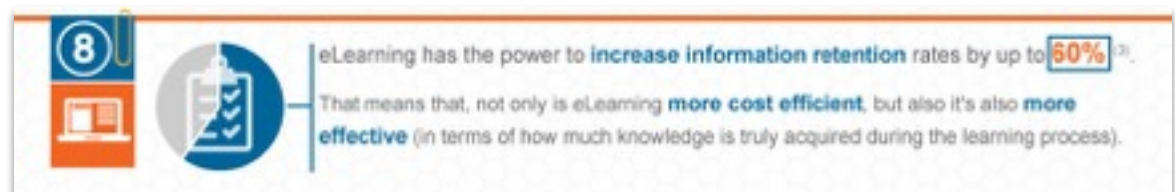
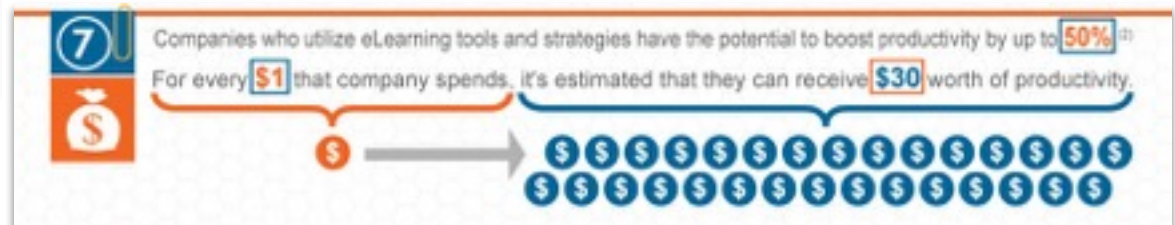
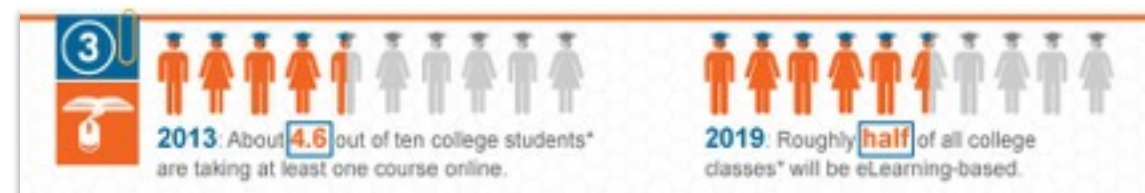
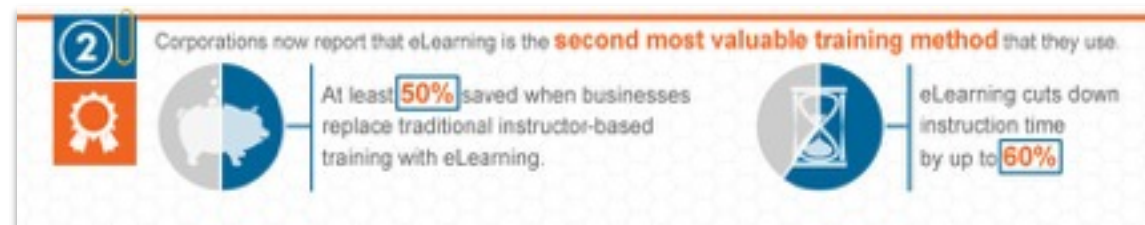
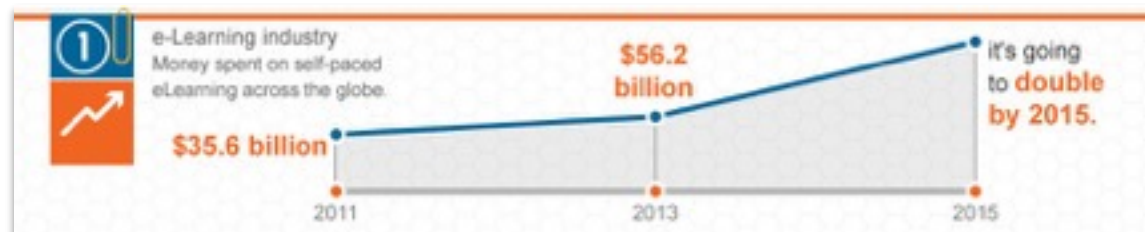




TOP 10 eLearning STATISTICS FOR 2014

The rise in eLearning's popularity isn't showing any signs of slowing. In fact, judging by the following Top 10 eLearning statistics for 2014, the future of the eLearning Industry is brighter than ever:







e-Learning industry
Money spent on self-paced
eLearning across the globe

\$35.6 billion

2011

BIG MONEY

\$56.2
billion

2013

2015

it's going
to **double**
by 2015.



2013: About **4.6** out of 10
are taking at least one course online.

BIG USERS

roughly **half** of all college
classes* will be eLearning-based.

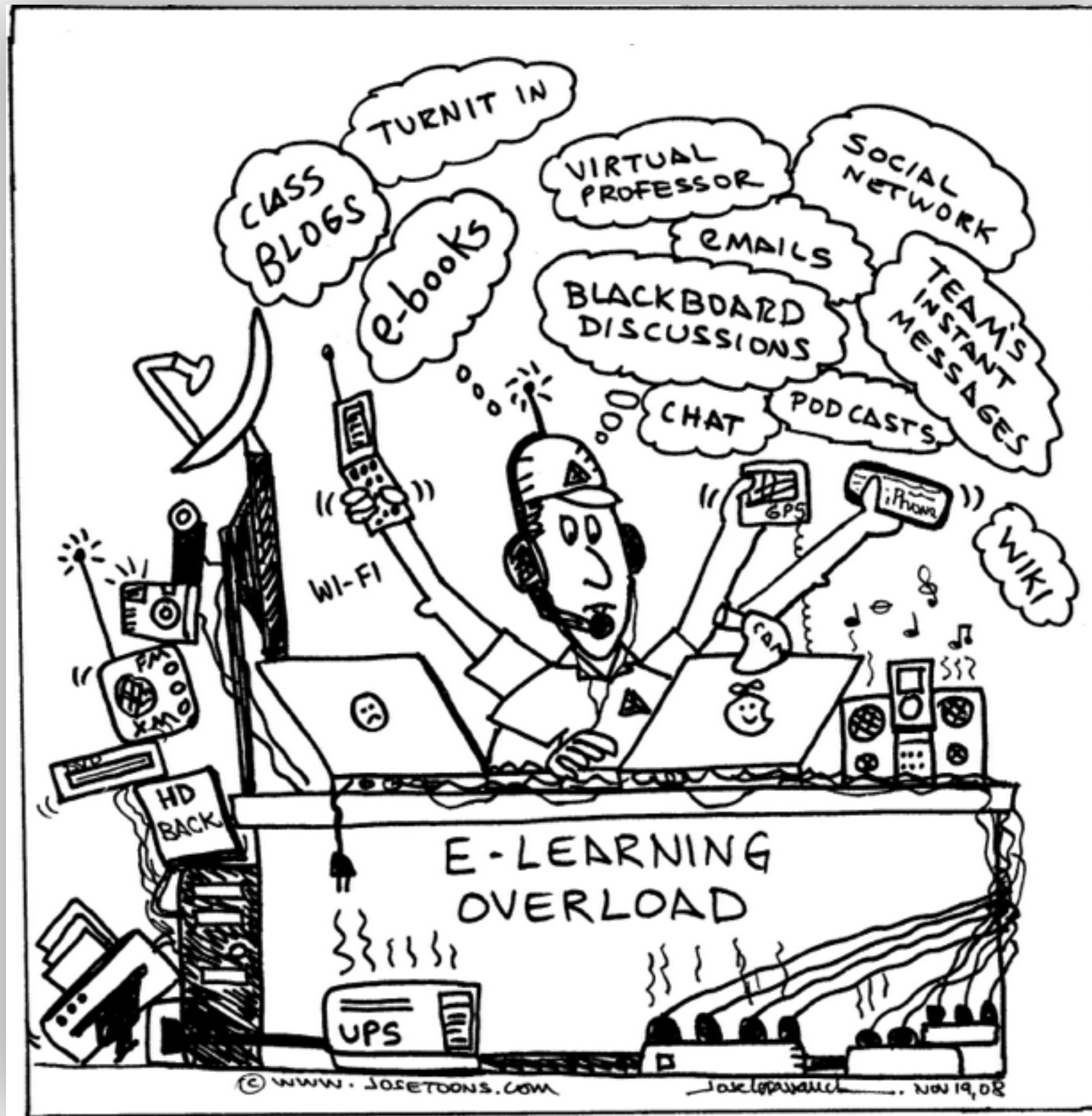


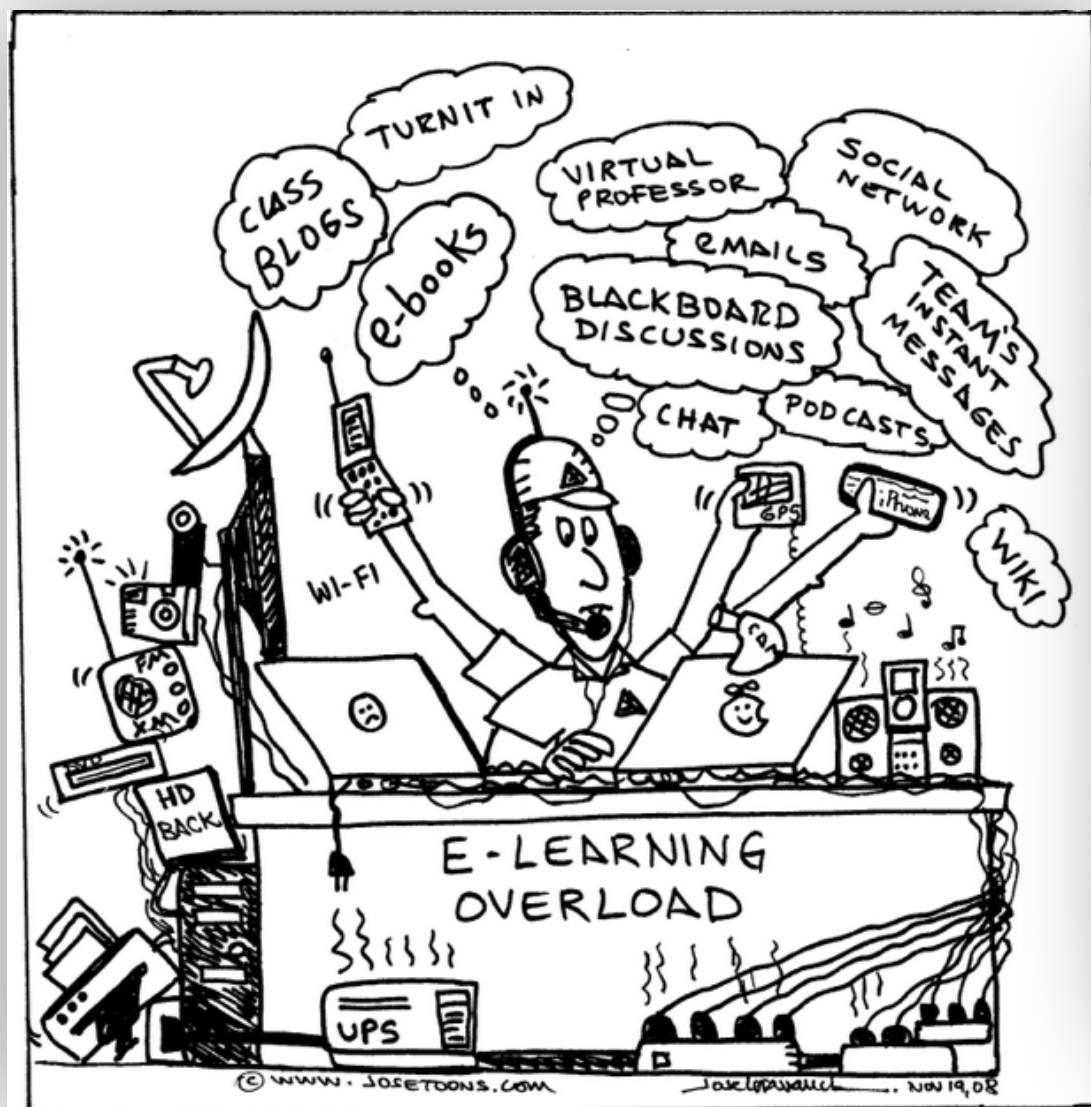
eLearning has the power to **increase information retention** rates by up to **60%** ⁽³⁾.

BIG IMPROVEMENT

it's also **more**
effective (the learning process).







The task of the modern educator is not to cut down jungles, but to irrigate deserts.

C.S. Lewis



Trends in Big Education



Big Education in the Era of Big Data @ Big Data Applications Workshop, December 12, 2014, HKUST, Hong Kong





**Cost
effectiveness**



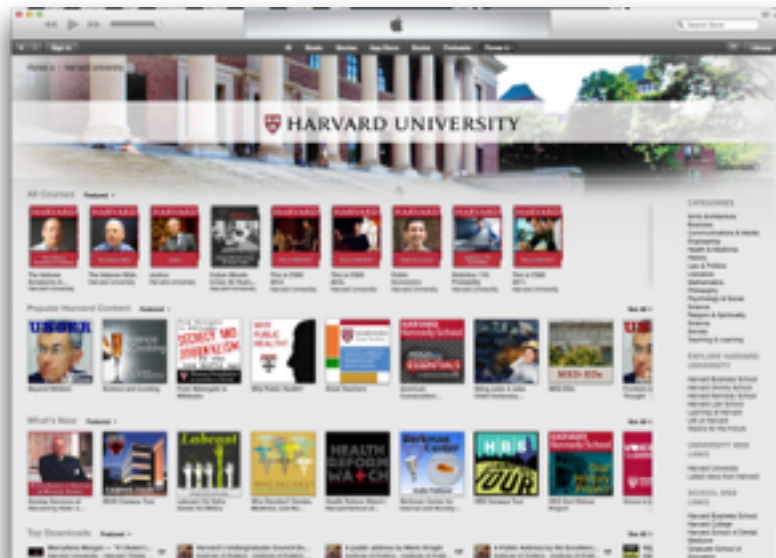
Collaboration



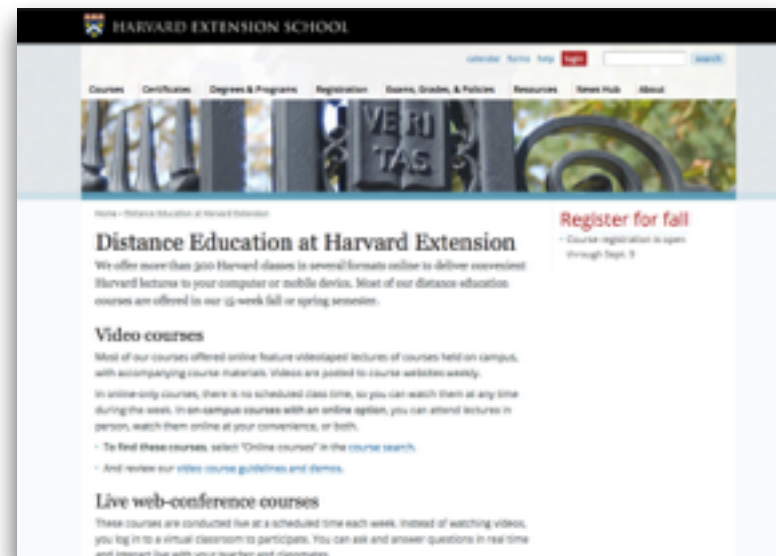
Customization



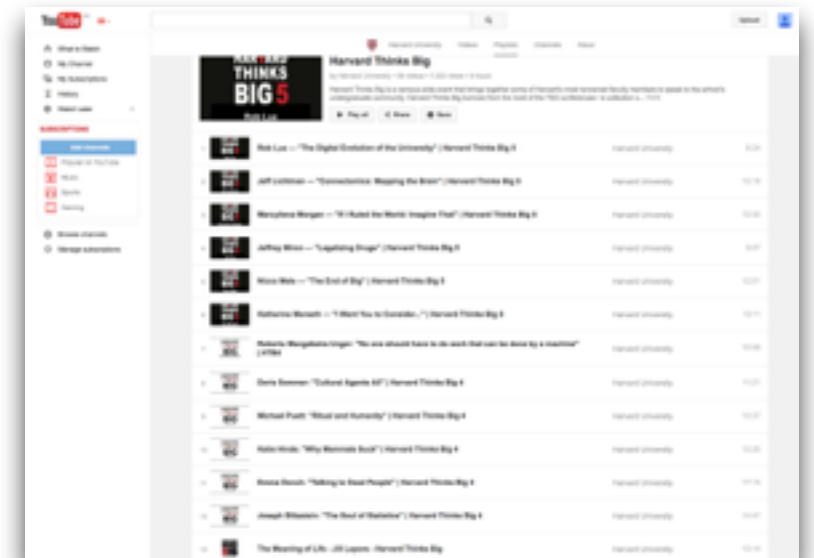
Multimodal Learning



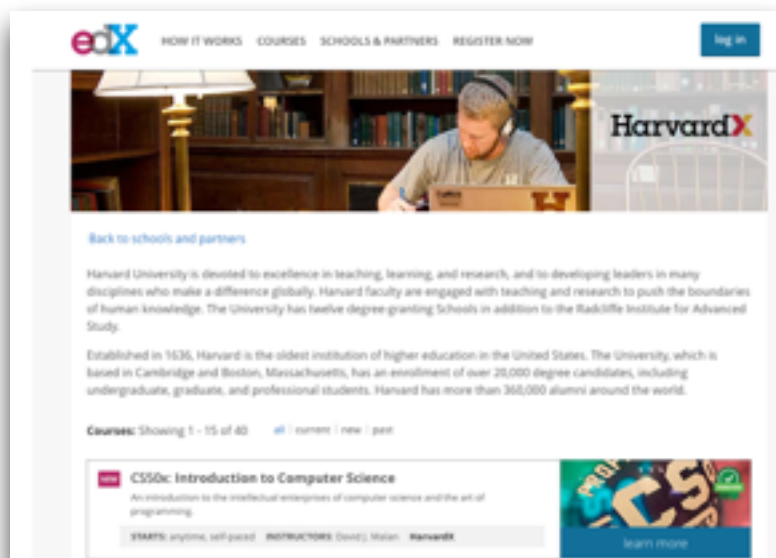
Harvard @ iTunes U



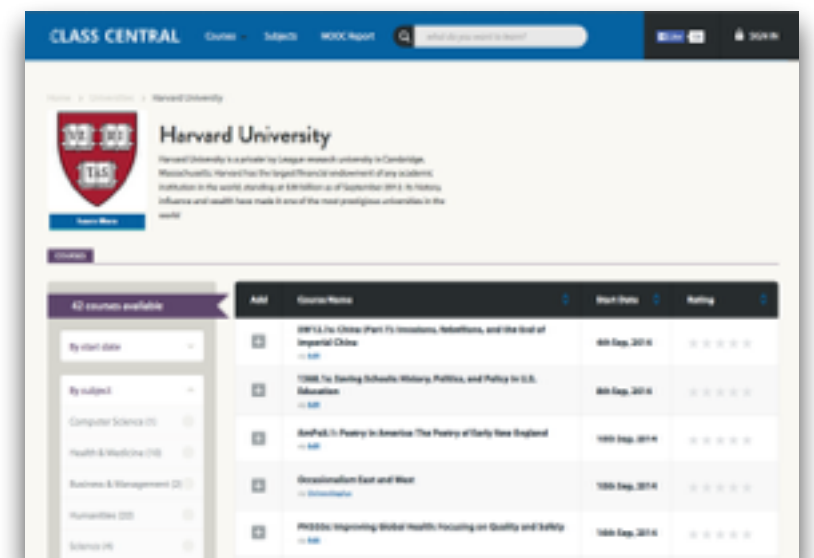
harvard.edu



Harvard @ YouTube



Harvard @ edX



Harvard @ Class Central



MOOC

Massive Open Online Course

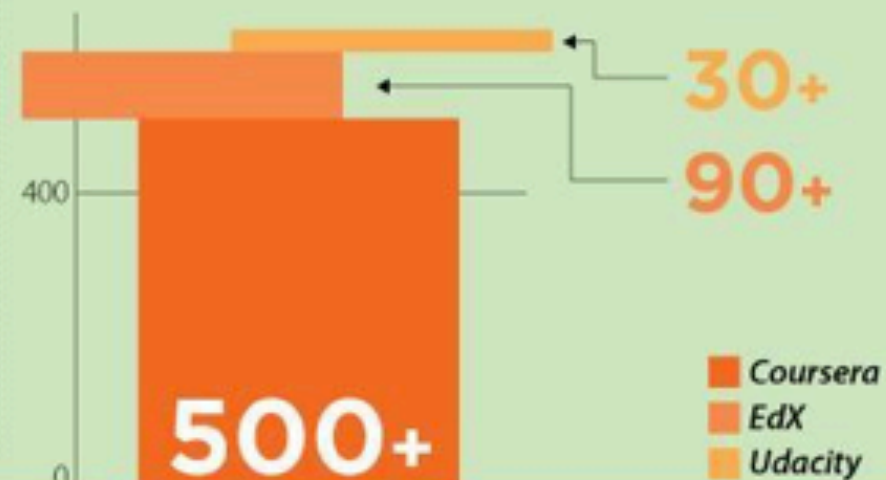


MASSIVE

Students enrolled in MOOCs



Courses offered by major platforms



OPEN

These courses are provided by many different universities and open to anyone who wishes to enroll.

87

The number of academic partners that offer courses on Coursera's platform



ONLINE

Courses are even reaching as far as developing countries like Mongolia, where high school students are taking courses from:



Major Providers



Started by Stanford computer science professors Andrew Ng and Daphne Koller in April 2012. For profit

5+million students

532 courses

107 partner schools

Students from 190 countries



Started by Harvard and MIT in May 2012. Non-profit

1.65 million students

125 courses

30 partners

225 countries and territories



Started by Sebastian Thrun and Peter Norvig in February 2012. For profit

1.8 million students

33 courses

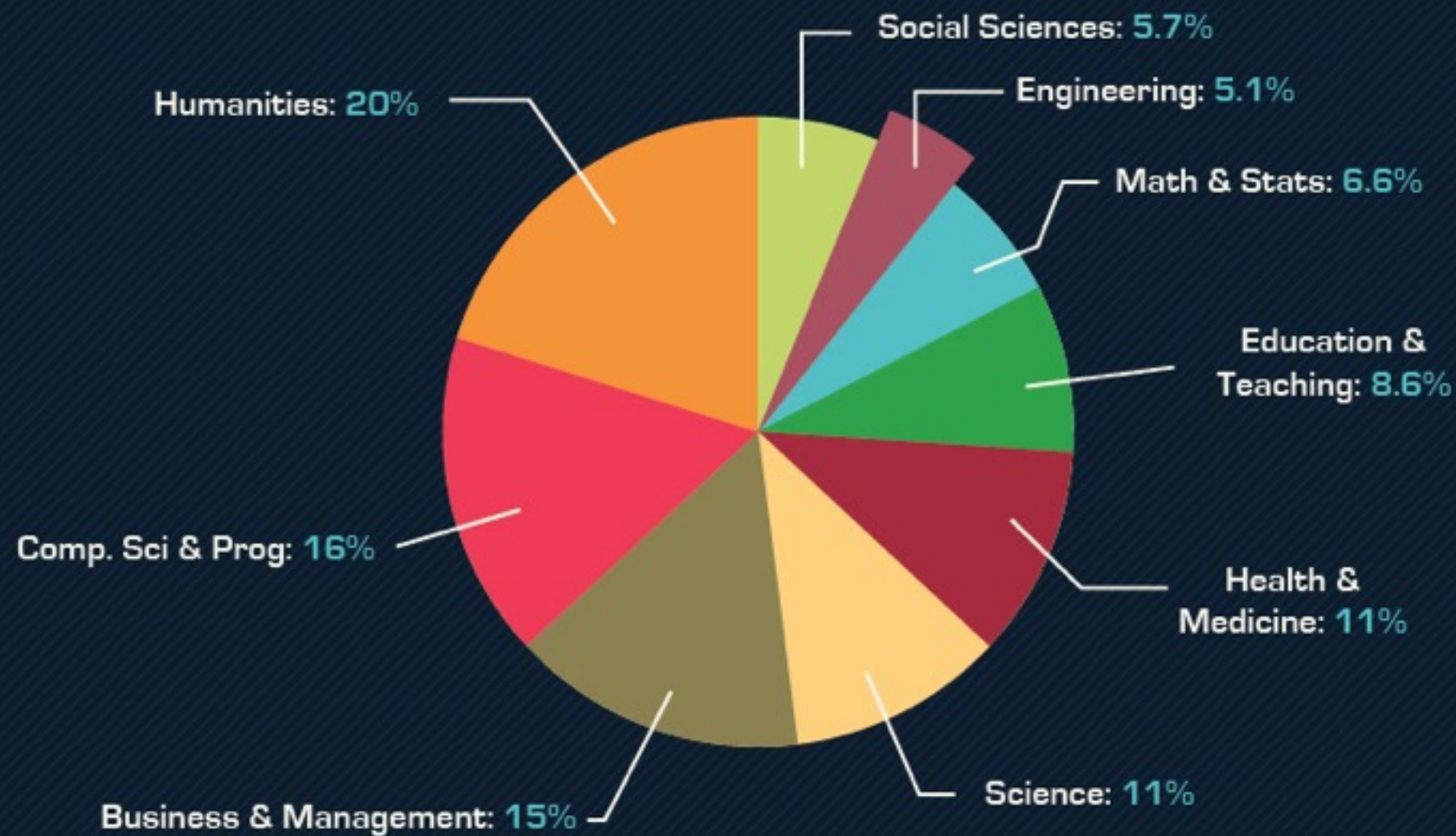
16 partners

190 countries



Courses Offered

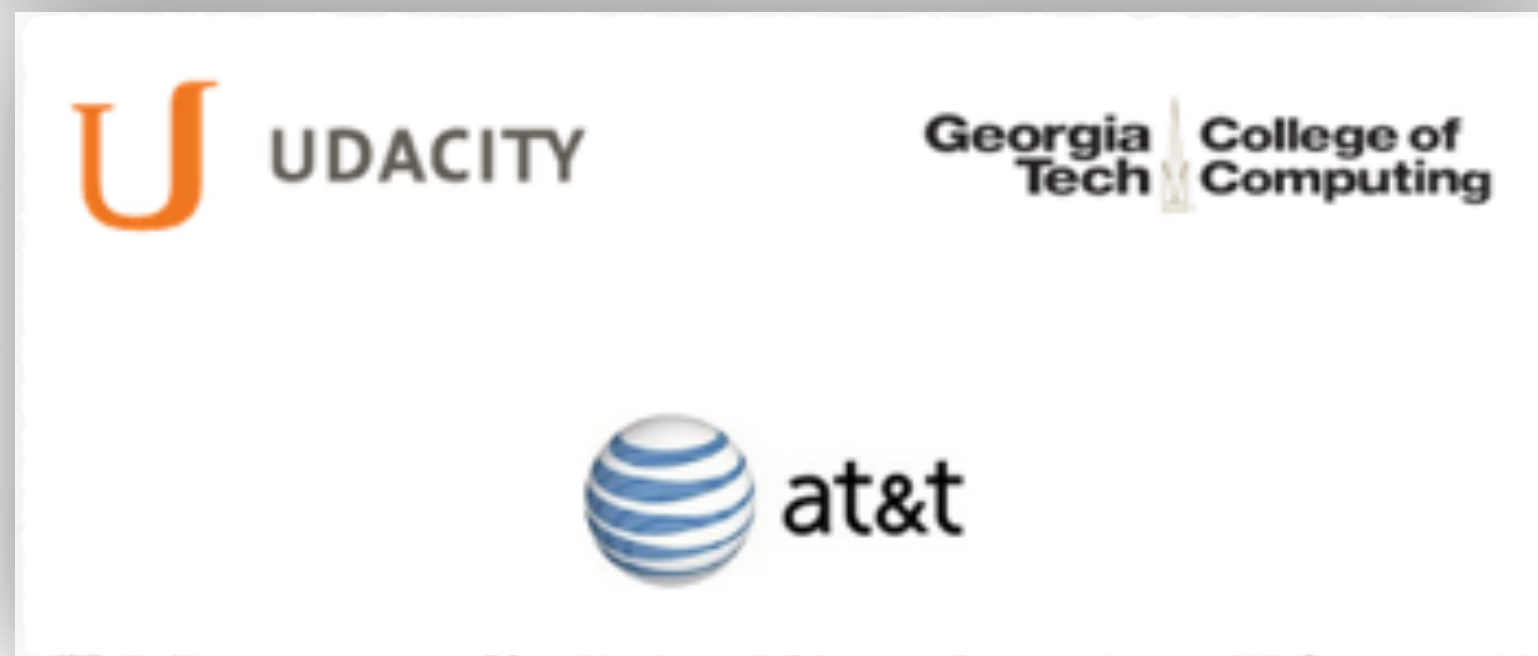
1200+ courses available



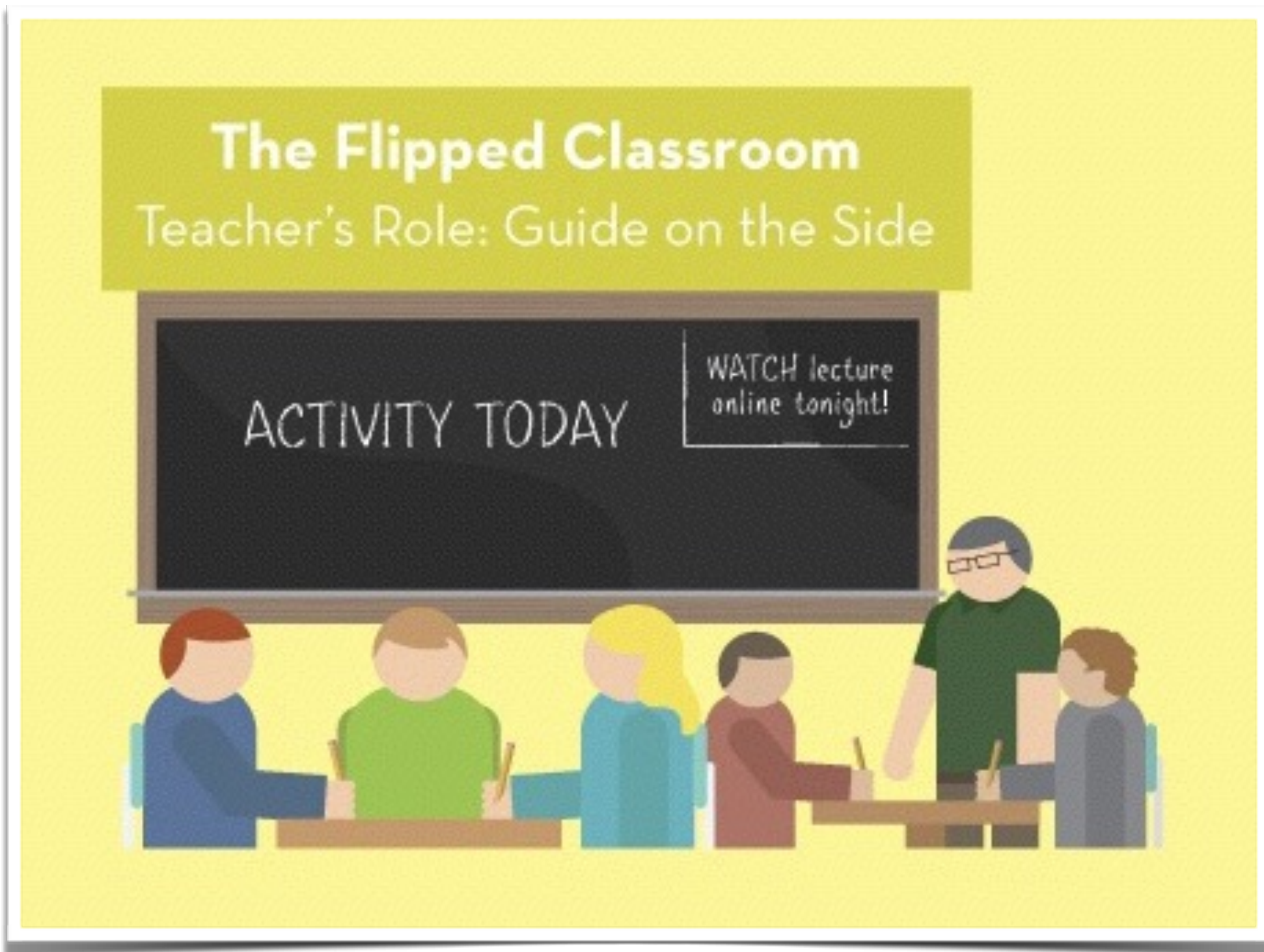
SOURCE: Edsurge



Small Private Online Course (SPOC) with Degree



Flipped Classroom



Microlearning

KHANACADEMY Subject: Computer pro... Coach About Donate Search for subjects, skills, and videos Log in Sign up

← COMPUTER PROGRAMMING

Intro to JS: Drawing & Animation

In these tutorials, you'll learn how to use the JavaScript language and the ProcessingJS library to create fun drawings and animations. If you've never programmed before, start here to learn how!

- + Create Program
- Documentation
- ? Help Requests
- Project Evaluations
- Community Questions

ALL CONTENT IN "INTRO TO JS: DRAWING & ANIMATION"

Intro to programming

If you've never been here before, check out this introductory video first. Then get coding!

- ▶ What is Programming?
- ▶ A Tour of Programming on Khan Academy

Drawing basics

We'll show you the basics of programming and how to draw shapes.

- ▶ Intro to Drawing
- ★ Challenge: H for Hopper
- ▶ More Drawing!
- ★ Challenge: Simple Shapes!
- ★ Challenge: CRAZY Face

Coloring

We'll show you how to color and outline your shapes!

- ▶ Intro to Coloring
- ★ Challenge: Ice Cream Code
- ★ Challenge: It's a Beautiful Day
- ▶ The Power of the Docs
- ▶ Project: What's for Dinner?

Variables

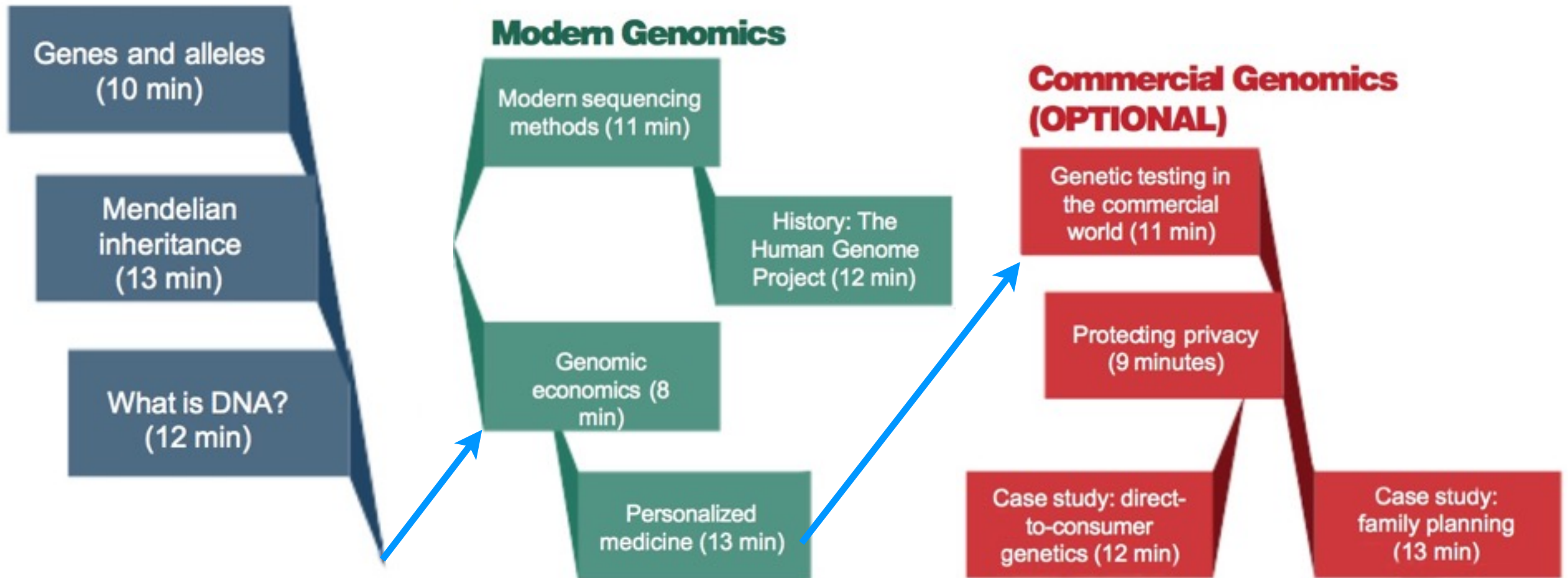
We'll cover how to use variables to hold

- ▶ Intro to Variables



Personalized Learning

Basic Genetics Refresher (OPTIONAL)



Active Learning

The screenshot shows a courseware interface with a sidebar on the left and a main content area. The sidebar contains a navigation menu with the following items:

- Week 1
- Week 2
 - Class 4: Functions, Programs, Commands
 - Class 5: Selection statements; if, switch
 - Class 6: Loops: for, nested
 - Class 7: Loops: while, vectorizing, timing code
- Week 3
- Week 4
- Week 5
- Week 6
- Worksheets

The main content area displays a video player with the title "FOR LOOP COMBINATIONS". The video content shows a "Nested loop trace example" with the following code:

```
for i = 1:3
    fprintf('*')
    for j = 1:5
        fprintf('%d', j)
    end
    fprintf('\n')
end
```

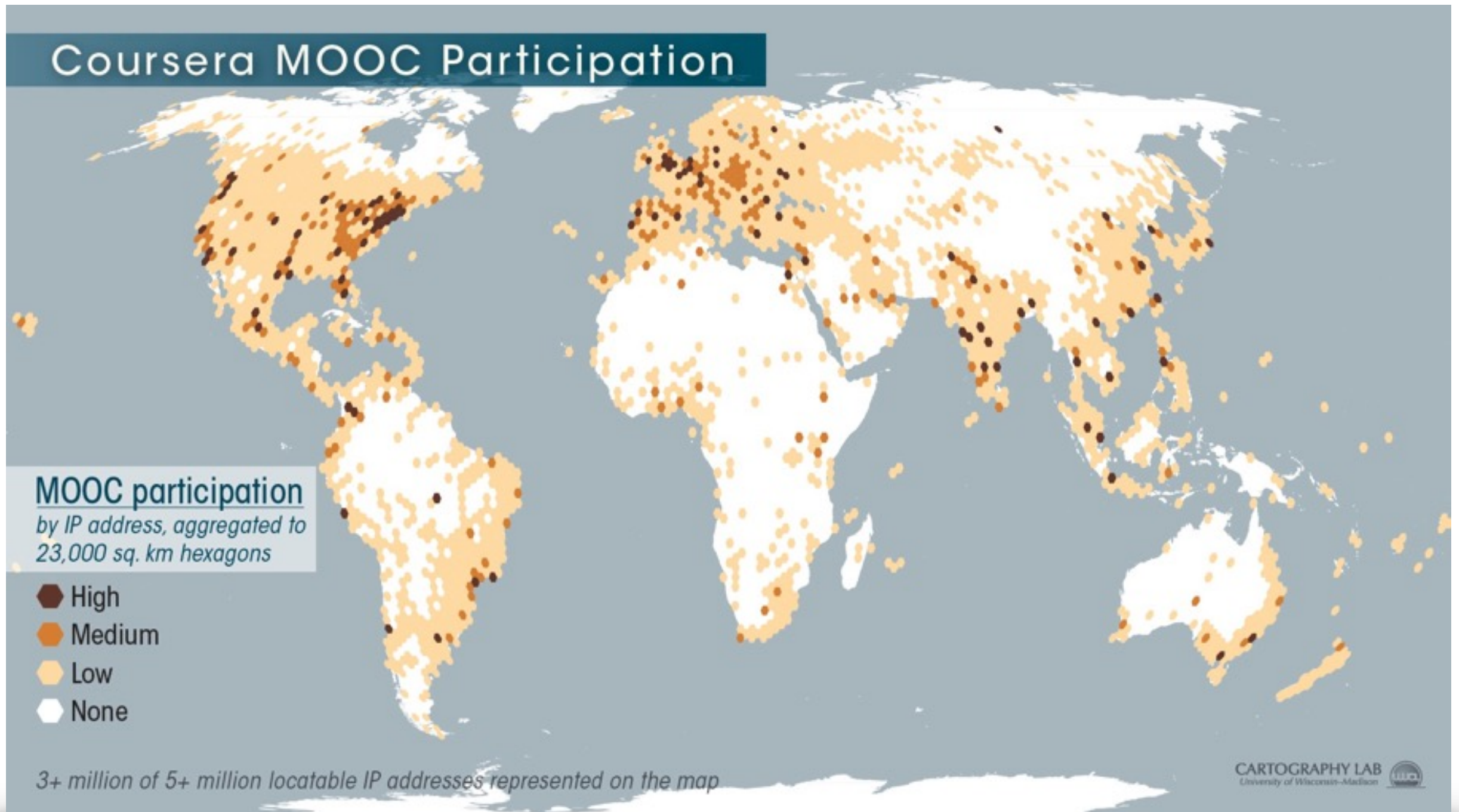
The output of the code is shown as:

```
*12345
*12345
*12345
```

The video player includes a progress bar at the bottom showing "0:00 / 5:14" and a speed control set to "SPEED 1.0x".



Peer Learning



Knowledge and Education Exchange Platform

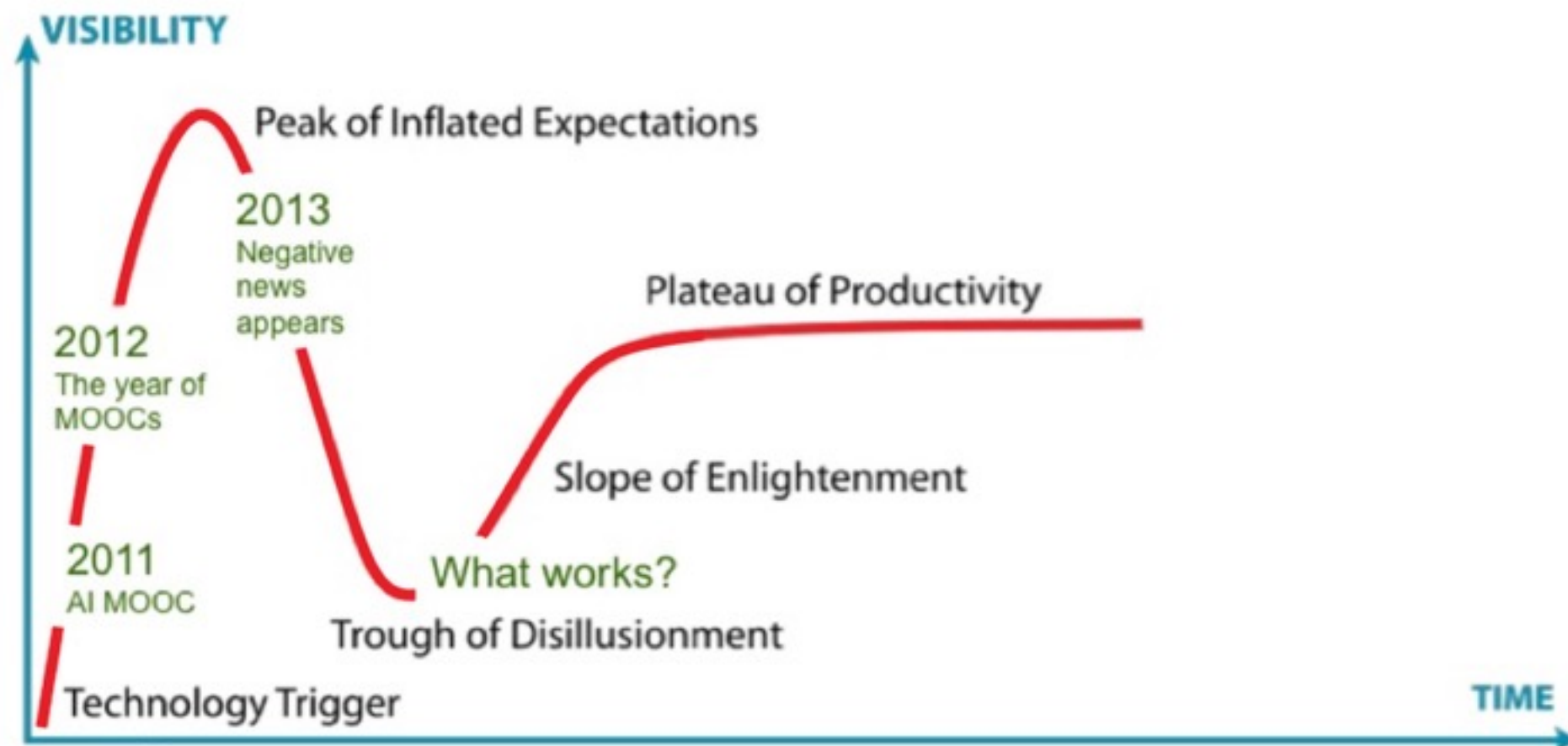


E-learning's Dark Side

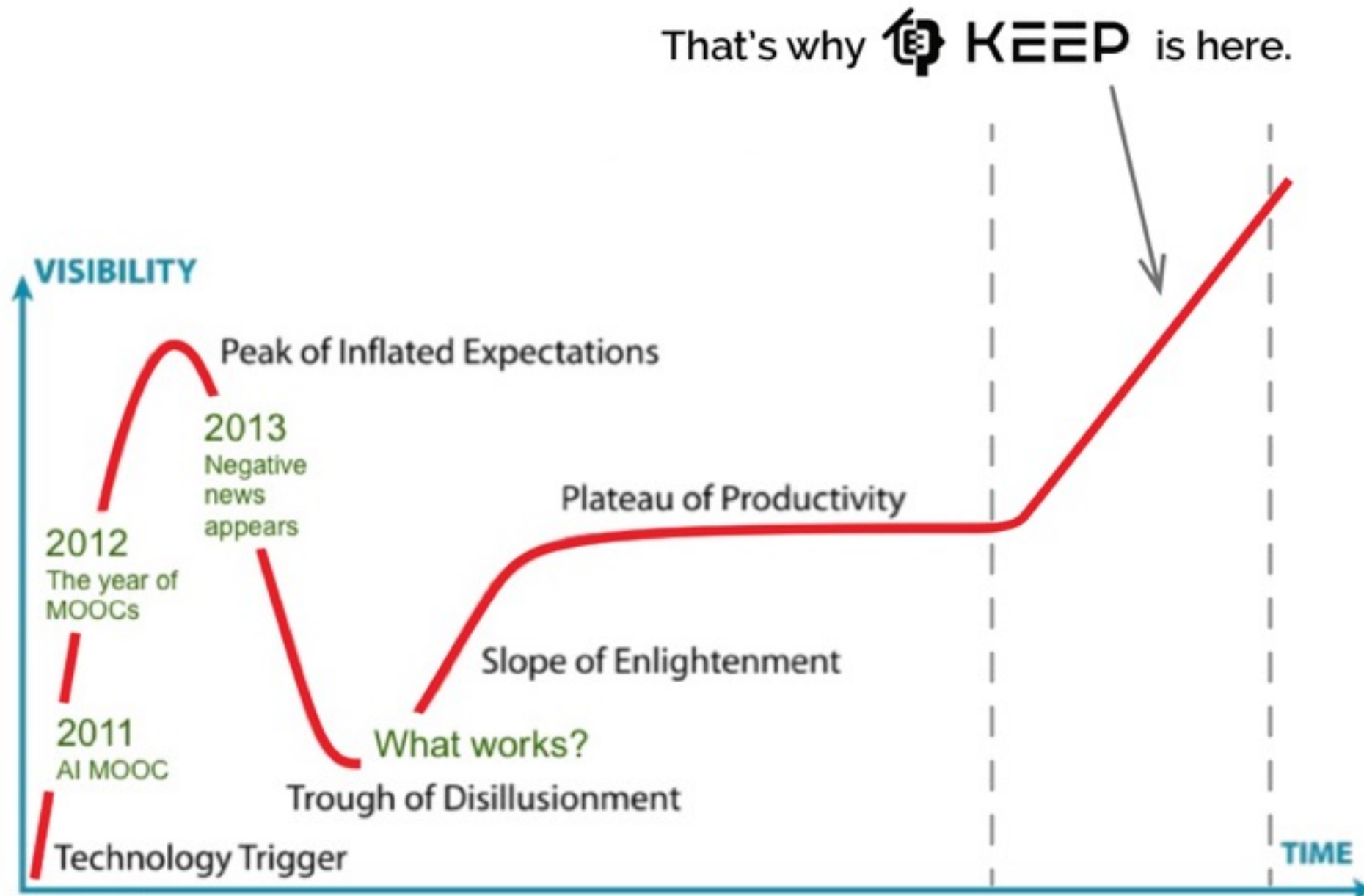
- Lack of intimate experience as in a traditional classroom
- Reduced interactions between students and teachers
- Limit the diversity of thoughts
- Low completion rate
- Course quality can become an issue



MOOCs: Gartner Hype Cycle



MOOCs: Gartner Hype Cycle



What is KEEP?

KEEP is a wake up call for the future of education

What is KEEP?

- KEEP is a **knowledge aggregator** and a **technology integrator**
- KEEP encourages and promotes **flexible and active learning**
- KEEP serves as the most creative **online learning gateway** for educators and learners around the world



Our Vision

To **empower people** by providing and promoting
the **best education resources** in order to
facilitate collaboration and innovation for **teaching and
learning**
through **knowledge aggregation** and **technology integration**

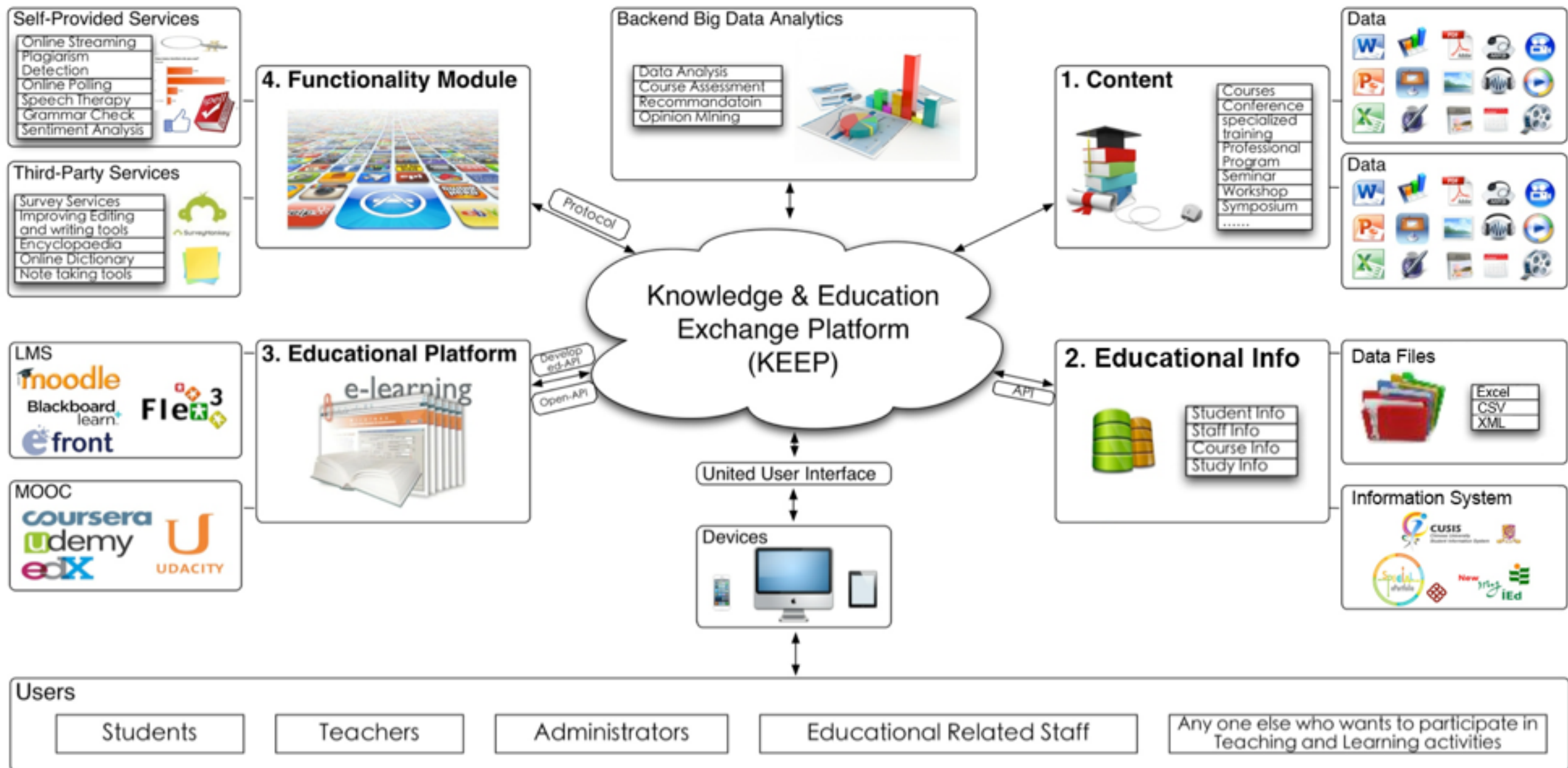


Our Mission

- Organize and search accessible and useful materials
- Gain fresh insights through analytics
- Collect the best online courses
- Promote innovative education applications

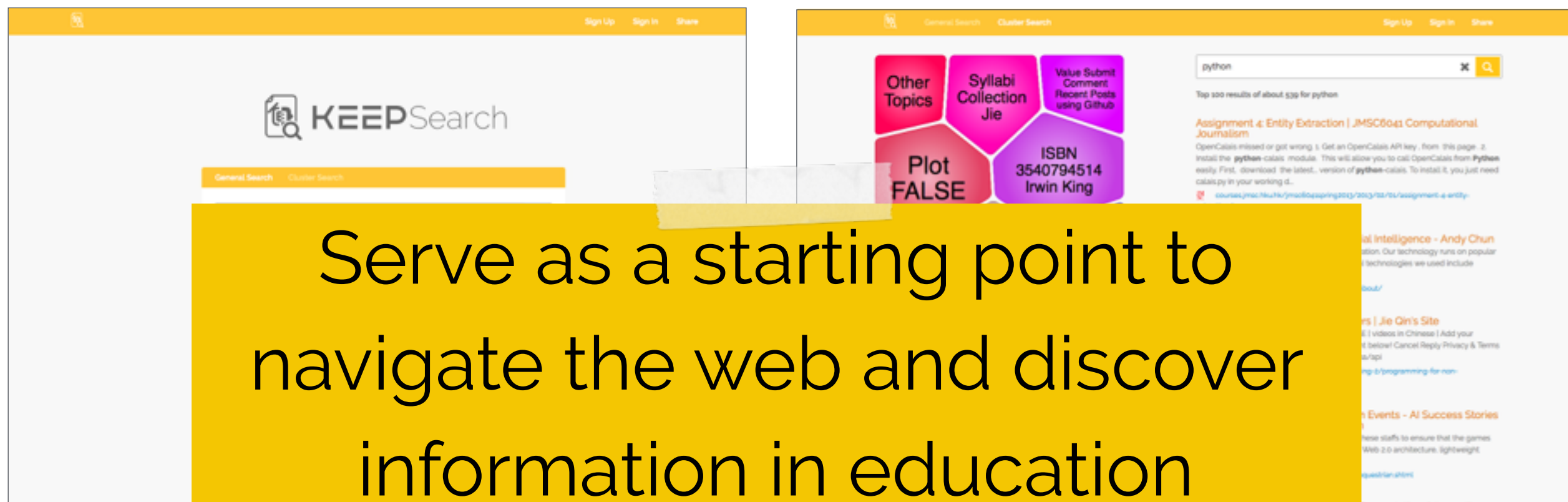


KEEP education cloud

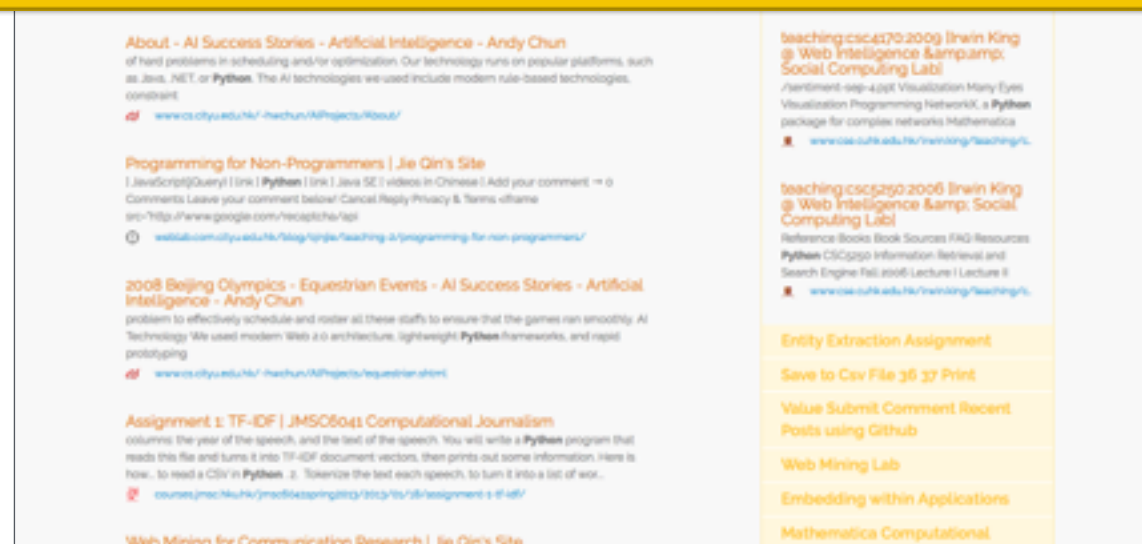




KEEP Search



Serve as a starting point to navigate the web and discover information in education



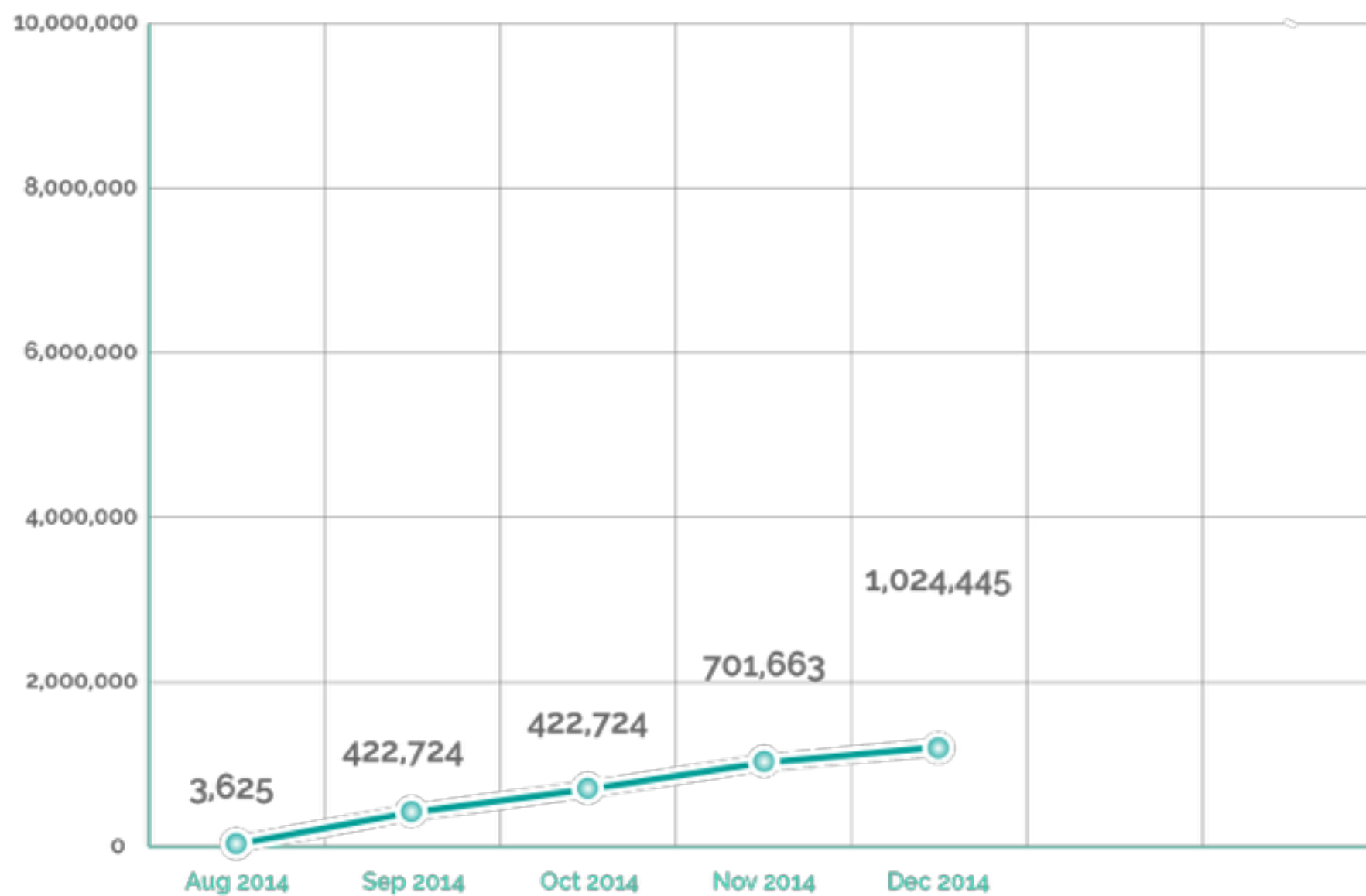
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KEEPSearch

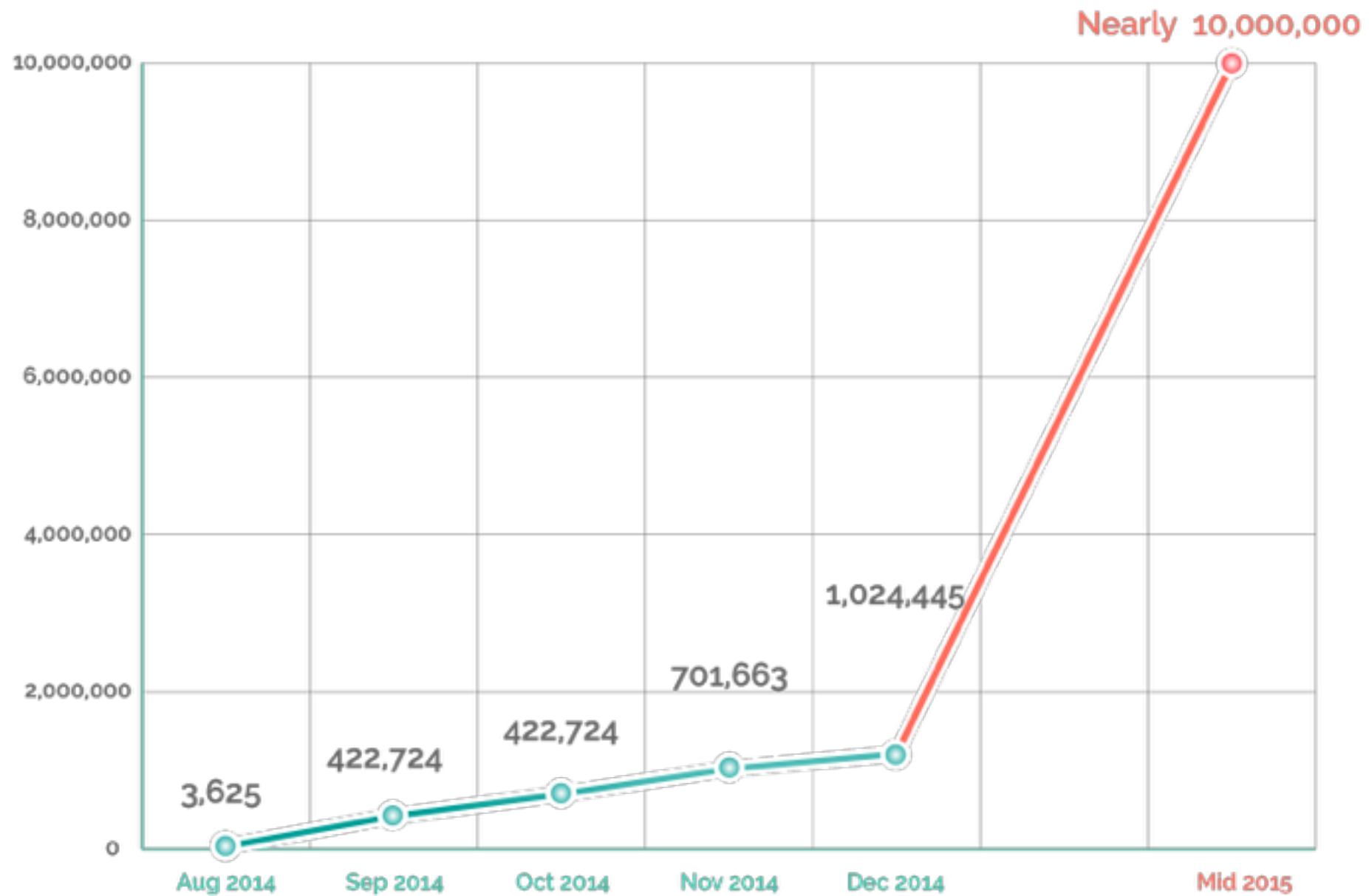
Number of pages KEEPSearch crawled





KEEPSearch

Number of pages KEEPSearch crawled





KEEPCourse

Provide users to seek, discover,
and share knowledge across
all platforms





KEEPedia

KEEPedia Create Logout

All Yours My Following

Michele Berner
Teacher of Information Technology
Pixlr Power
Resizing, saving, coloring
test123456
by Chris Wong on 19/11/14
0 views
your description here
Not Published

Dr. Richard Feenstra
Educational Psychologist
Founding Partner, Decision Skills
Solve Problems In 4 Steps
Solve Problems In 4 Steps
by Chris Wong on 19/11/14
0 views
your description here
Published

Creation Of Angry Birds
by Chris Wong on 19/11/14
0 views
your description here
Not Published

Tips for a Perfect Interview
by Chris Wong on 19/11/14
0 views
your description here
Published

Game promotion
by Chris Wong on 19/11/14
0 views
Jaakko Lisalo and Matthew Wilson of Rovio Mobile (Angry Birds) tell you their way of marketing the final product.
Published

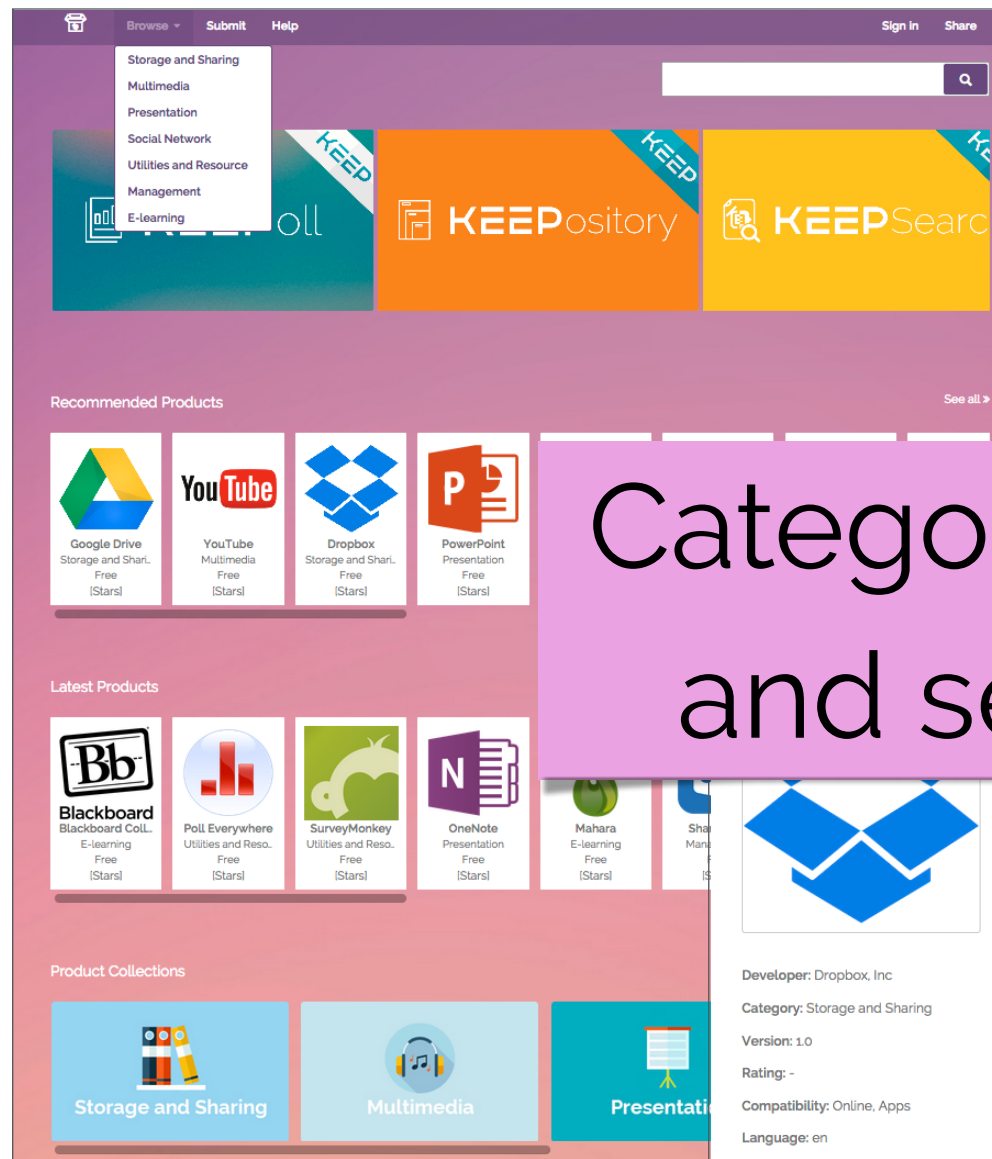
The 5th lecture of CHNDM Design Talks Series Part 4
Not Published

Create and share of micro-learning modules with relevant information





KEEP Catalog



Categorize learning tools
and services for users

Home > Submit Product

Submitter Information
We will not store your personal information nor publish it on the webpage. This information is only for contacting when we have questions.

Submitter Name
Email

Application Information
We would review the application and inform you when the verification process is done.

Application Name
URL
Description
Thumbnail image No file chosen
Developer

Tags (Optional) Separate keywords by comma (,)

About KEEP | Terms & Conditions | Help
Copyright © 2014 KEEP. The Chinese University of Hong Kong. All rights reserved.

Developer: Dropbox, Inc.
Category: Storage and Sharing
Version: 1.0
Rating: -
Compatibility: Online, Apps
Language: en

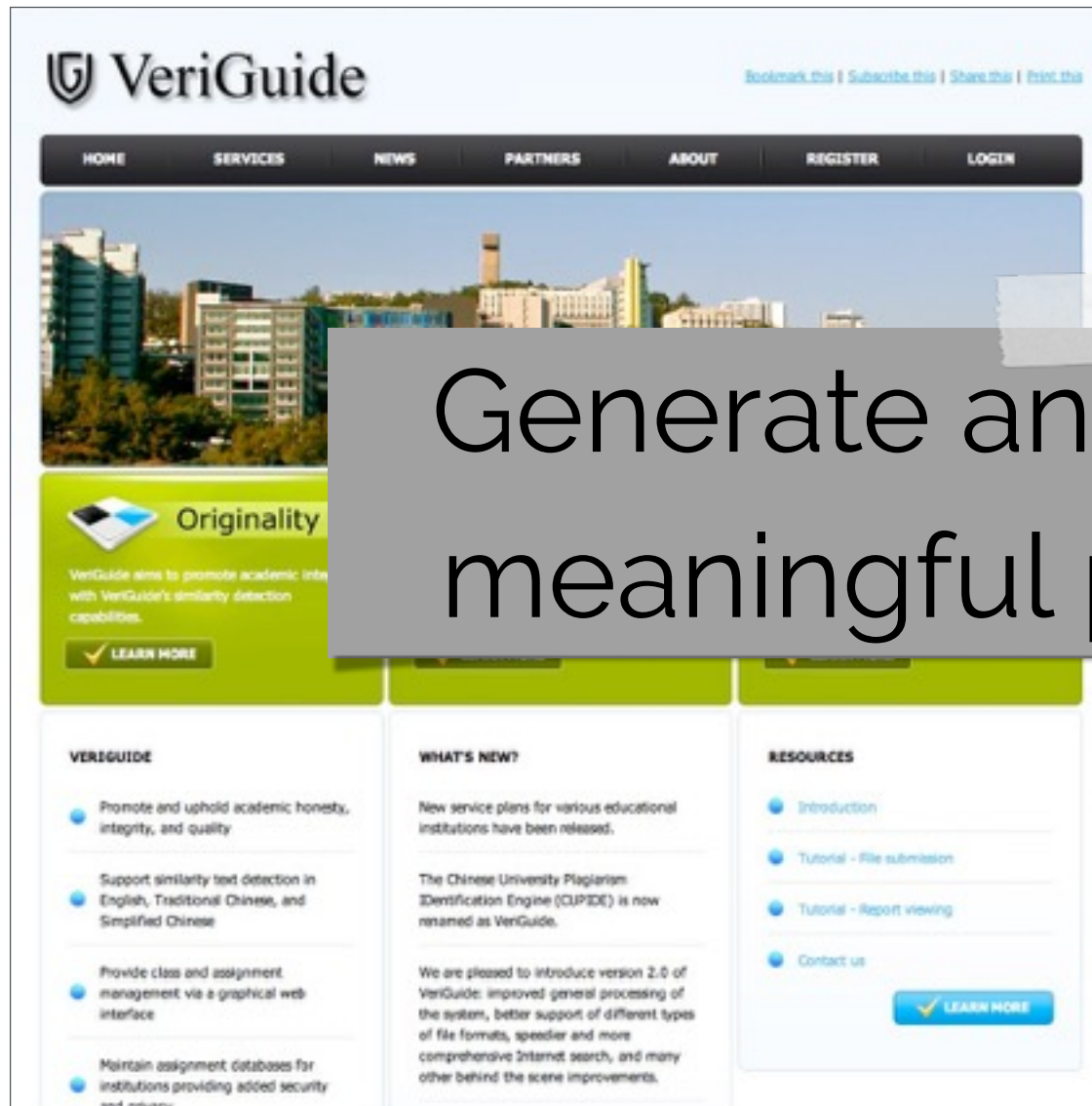
Screenshots:

Description:
A free file hosting service that offers cloud storage, file synchronisation, and client software. Dropbox is a file hosting service operated by Dropbox, Inc., headquartered in San Francisco, California, that offers cloud storage, file synchronization, personal cloud, and client software. Dropbox allows users to create a special folder on each of their computers, which Dropbox then synchronizes so that it appears to be the same folder (with the same contents) regardless of which computer is used to view it. Files placed in this folder also are accessible through a website and mobile phone applications. Dropbox was founded in 2007 by Drew Houston and Arash Ferdowsi, as a Y Combinator startup company. Dropbox provides client software for Microsoft Windows, Mac OS X, Linux, Android, iOS, BlackBerry OS and web browsers, as well as unofficial ports to Symbian, Windows Phone, and MeeGo.





KEEP Apps





Generate and communicate meaningful patterns of data





KEEPoll


Your Polls  


All Polls 11	Question	Status	Date Created
List A 10	Regarding sales channels, pricing, and profit, which of the following is right?	Edit Open	on Dec 2
List B 0	What are your main interests?	Edit Closed	on Dec 2
List C 0	How did Ashton Kutcher prepare for his role as Steve Jobs?	Edit Open	on Dec 2
List D 1	What is it like to visit North Korea?	Edit Open	on Dec 2
New List	What is your favourite movie?		
	When should you launch your product / app launch?		
	What movies should you watch?		
	Should I keep my car?		
	What is a typical day like?		
	How do directors choose their cast?		


Allow users to create questions and to collect real-time feedback easily

[Add a Choice](#)

Poll Type

☒ Single Poll 

☐ Last Poll 

☐ Multiple Poll 

[Create](#)





KEEPository

KEEPository

Everything

Leonard Mok (longyatmok@gmail.com) Logout

New

All items

- CUHK
 - CSCI3150
 - Mole Wong
 - CSCI3180
 - Java
 - Prolog
 - Python
 - CSCI4180
 - 2011-2012
 - 2013-2014
- UST
 - ENGG3300

Title	Author	Last Modified
Midterm 1	Leonard Mok	Today at 4:36 PM
Python Question List	Leonard Mok	Today at 4:15 PM
Untitled Question	Leonard Mok	Today at 2:26 PM
Amazon Dynamo	Leonard Mok	Today at 2:24 PM
MapReduce	Leonard Mok	Today at 2:22 PM
Multiply two numbers in Prolog	Leonard Mok	Today at 2:17 PM
Python I/O	Leonard Mok	Today at 2:17 PM

Multiply two numbers in Prolog

Details

Type: Question

Labels: CUHK/CSCI3180/Prolog

Owner: Leonard Mok

Modified: Today at 2:17 PM

Allow users to create,
manage and share
their questions easily

Manage Labels

Multiply two numbers in Prolog (Question)

CUHK/CSCI3180/Prolog

- CUHK
- CUHK/CSCI3150
- CUHK/CSCI3150/Mole Wong
- CUHK/CSCI3180
- CUHK/CSCI3180/Java
- CUHK/CSCI3180/Python
- CUHK/CSCI4180
- CUHK/CSCI4180/2011-2012
- CUHK/CSCI4180/2013-2014
- UST
- UST/ENGG3300

Done Cancel

Content

Please choose the N, R, W of Amazon Dynamo

Answers

Answer 1

Answer 1

3,2,2

☒ This is the correct answer.

Save



Work in progress & Future works



Natural language processing

- Text and semantic analysis
- Summarization
- Sentiment analysis
- Automated grading
- Q&A systems



Recommendations



- Personalized learning
- Courses, tutors, peering learning partners, etc.
- Learning resources, time allocation, etc.
- Career planning

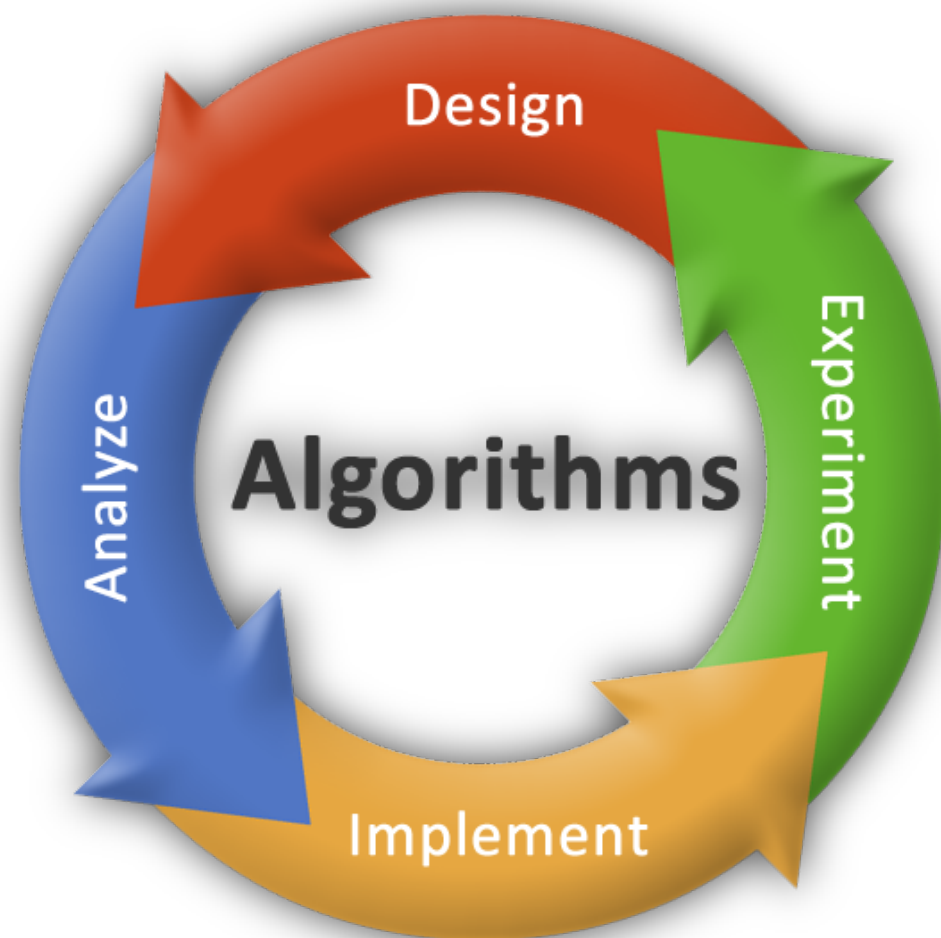


Knowledge map

- Explore topics
- Track topic changes
- Make topic comparisons and inferences
- Better search on concepts



Algorithms & Techniques



- Machine learning
- Data analytics
- Social computing
- Web intelligence Multimedia information processing



Are You Ready?

21st CENTURY

Q&A



Acknowledgements

- Byron Lai
- Daisy Lau
- Jamie Yeung
- Jean Yao
- Junfeng Yang
- Lin Tsang
- Patrick Lau
- Raymond Yuen
- Roger Cheung
- Sophia Man

Looking for more engineers, programmers, system analysts, etc. to work on KEEP...



Reference

<https://d1z850dzhxs7de.cloudfront.net/topics/ml/large-icon.png>
http://www.excella.com/blog/wp-content/uploads/2013/02/Code-review_11935373_m.jpg
<http://www.agendaitalia.it/wp-content/uploads/2013/02/Google-Knowledge-Graph.png>
<http://www.bjcbranding.com/wp-content/uploads/2013/05/search-engine.jpg>
<http://en.docsity.com/news/algorithms/5-algorithms-widely-industry/>
<https://www.flickr.com/photos/peteashton/56631252/>
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http://www.wikiwand.com/en/Massive_open_online_course
<http://elearninginfographics.com/exploring-the-dark-side-of-moocs-infographic/#.VHY5dXgb2hQ.twitter>

