Transforming American Education

Learning

Powered by Technology

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Learning
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National Education Technology Plan 2010

U.S. Department of Education
Office of Educational Technology
National Education Technology Plan

- Teaching
- Learning
- Assessment

Infrastructure

Productivity
What are the education technology trends?
Mobility – 24/7 Access

Social Interactions for Learning

Digital Content

Data and information
Why?
What does digital afford for learning?
1. Review explanations - repeatedly
Khan Academy
Red Blood Cells from Heart

Pulmonary Artery deoxygenated

98.5%

No nucleus, no DNA

More space for hemoglobin
2. Guide the learner - learning progressions
3. Increase feedback.
Scientific notation

Related videos: Scientific Notation (old), Scientific Notation Examples

Express this number in scientific notation.

0.000 507 7

Count the zeroes to the right of the decimal point before the leading 5: there are 3 zeroes.

If you count the leading digit 5 and those zeroes, there are 4 digits to the right of the decimal point.

So: 0.000 507 7 = 5.077 \times 10^{-4}
4. Animate & simulate complex concepts.
Changing Education paradigms

Sir Ken Robinson
5. Access experts.
BADGES ON APP ENGINE: IMPLEMENTING A REAL-TIME BADGE FRAMEWORK FOR KHAN ACADEMY

Building a badge system that gives feedback in real-time on top of Google App Engine involved more than one technical challenge worth sharing. This long post winds in and out of geeky tricks we used for the Khan Academy badges, ranging from protocol buffer serialization for fast memcache communication to App Engine’s mapreduce framework.

Everything mentioned below is qualified with the standard “I was just figuring this out and I’m far from a Python expert and you probably know a better way and please tell me in the comments” disclaimer.

Self-imposed requirements

• Must support lots of deep badges for interesting behavior like “Answered 90% of the questions in this exercise correctly” and “Watched half an hour of video and answered 20 problems in 45 minutes,” not just two or three shallow “Watched 10 videos” things.

Ben Kamens - Lead Developer - Khan Academy
See your insects under the Scanning Electron Microscope,
Watch tutorials to learn how your insects are prepared.
Ask questions via the built-in chat,
Have the opportunity to control the microscope.
6. Connect and participate globally.
7. Improve Accessibility
8. Publish to wide audience.
9. Extend the school day.
Federal Policy –

High Goals with flexibility
All Programs – Technology Opportunity
Research and Development
“Education is both a moral obligation and an economic imperative. We are in a fight for the future - a fight that depends on education.”

– President Barack Obama
Thank you!

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