Using a Social Media Platform to Explore How Social Media Can Enhance Primary and Secondary Learning

http://opinion.berkeley.edu/learning
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Each day...

- 10 billion minutes spent on Facebook
- 400 million tweets
- 100,000 hours of videos uploaded to Youtube
Outline

How can Social Media Enhance Primary and Secondary Learning?

• Motivation
• The Collective Discovery Engine
• The Experiment and Progress
• Summary and Future Work
Related Work

Everyday Life: Ethnography

Social Scientific Understanding of Learning
- Activity Theory, Social Learning, and Constructivism (Vygotsky, Engeström)
- Constructionism (Papert, Harel)
- Situated Learning (Lave & Wenger)
- Practice (Bourdieu, Giddens, Ortner, Lave)
- Habitus (Bourdieu)

Virtual World: Collective Discovery Engine

The Participant
Massive Open Online Courses

Open Teaching Initiatives
Social Media:

Benefit:
- **Quantity**

Problem:
- **Quantity**

Existing Social Media tools are:
- Binary (friend/not friend, thumbs up/down)
- Linear (lists of comments/tweets)
Visualization
Continuous Ratings

Visual Analog Scale

Strongly Disagree  Strongly Agree
The Collective Discovery Engine

How can social media be used to benefit primary and secondary learning?

SCORE: 282
Step 1
Enter opinions on the profile statements and create a *bloom*.
Step 2

Contribute to the discussion.

How can social media be used to benefit primary and secondary learning?

Now enter your own idea (to fill your bloom)!

SCORE: 18
Step 3
Read and evaluate the ideas of others.

1. Instant response: collaboration required face-to-face communication. Immediate responses are crucial to an effective group discussion and learning, which also puts group studying in an ineffective way in a sense, as students don’t always have the opportunity to travel and join other brilliant minds. Social media is based on the Internet, on which a collaboration can effectively run regardless of distance and location.

2. Unprecedented outreach: the problem with traditional learning is that one is almost always trapped in the limited living environment and within the resources one’s
Gameplay

How can social media be used to benefit primary and secondary learning?

Leaderboard

1. SANJAYKRISHNAN 1,006
2. LUKASVERMEER 989
3. HASSAANAAMIR 970
4. HRHEINGOLD 917
5. OZGE 873
6. ERICADRAY HARTMAN 858
7. KUP1 854
8. DXR4911 821
9. JAMES 814
10. TONYA 810

MY STATISTICS

SCORE: 814 Points
IDEA RATED BY: 32 Participants

Ratings Received
Outline

*How can Social Media Enhance Primary and Secondary Learning?*

- Motivation
- System Description
- The Experiment and Progress
- Summary and Future Work
Discussion Topic

How can Social Media be Used to Enhance Primary and Secondary Learning?

1. How effective will this idea be?
2. How innovative is this idea?
Participation

- 155 participants, 118 ideas, 751 evaluation pairs

**Age**
- <18: 2%
- 26-33: 25%
- 33-50: 24%
- 50+: 13%
- 18-26: 36%

**Location**
- USA: 67%
- China: 8%
- Japan: 7%
- Other: 18%
Profile Statements

- 8 statements
- Examples
  - Twitter can expose students to new perspectives on topics they are studying.
  - A degree from an on-line school like Khan Academy is equivalent to a high-school diploma.
  - Nothing can replace a pencil and paper for learning.
  - Video lectures are better than traditional lectures as they free up class time for group discussions.
Profile Statements

Google Docs can help with math

Social Media Games are useful

Twitter can expose new perspectives

Facebook helps build social skills

Khan academy

Nothing can replace paper

Facebook is a distraction

Video Lectures are better

Strongly Disagree

Strongly Agree
Demographics and Profile Statements

The bar chart shows the distribution of user engagement across different age groups for various activities. The activities include Google Docs, Social Media Games, Twitter, Facebook social, Khan Academy, Pencil and Paper, Facebook distraction, and Video Lectures. The age groups are 18-26, 26-33, 33-50, and 50+. The chart indicates the percentage of users participating in each activity within each age group.
Profile Correlations

- Khan Academy
- Google Docs
- Video
- Facebook Distraction
- Games
- Twitter
- Facebook Social
- Pencil and Paper
Diversity of Opinions

PCA visualization of all participants
Top Rated Ideas

1. *Foreign Language Education*

“...learning of a new language will be fun if students can practice it with native speakers who live in other parts of the world through social media...”
2. *Grading Group Projects*

“...Collaborative tools like Google Docs can reveal the history of a document to reveal who has contributed to a document, and in what ways...”
Top Rated Ideas

3. *Teacher Collaboration*

“Sharing tools and techniques to improve learning...generating a database from which to gain inspiration and collaboration for lesson plans, field trips, engagement, etc. “
Top Rated Ideas

4. **Diversity**

“In the United States, neighbourhoods are not always very diverse...exposure to different people and perspectives will benefit students.”
Online Language Learning Communities

- Livemocha – World’s Largest Language Learning Community
- italki – Language Learning Community & Marketplace
- busuu.com – Your Language Learning Community
- My Language Exchange – Find a native speaking partner!
- Dave’s ESL Café – The Internet’s Meeting place for ESL & EFL
- LingQ – Study online 24/7 and meet people from around the world!
- hello-hello – Interactive online language course with a community

Steve Sorden, “Emerging Trends in Foreign Language Teaching with ICT,” 2012 (CESL, Univ. of Arizona)
LEARNING ANALYTICS 101
Leveraging Education Data

When you hear “analytics,” you might think of webmasters tracking visits to their site (whether it’s e-commerce, a personal blog or otherwise). But learning analytics combines this sort of data analysis with student interaction in online education tools, aiming to create a more integrated and customized learning experience. It uses intelligent data, student performance and analysis models to find out how students learn and improve on their experience. Find out more about this educational revolution.

What can it do?
- Predict future student performance (based on past patterns of learning across diverse student bodies)
- Intervene when students are struggling to provide unique feedback tailored to their answers
- Personalize the learning process for each and every student, playing to their strengths and encouraging improvement
- Adapt teaching and learning styles via socialization, pedagogy and technology

What can it be used for?
- Detecting performance difficulties
- Frustrated language (e.g. in message boards)
- Lower than average time spent on site
- Long time between logins
- Inattention vs. lack of understanding
- Could even distinguish guessing vs. knowing multiple choice answers
Ministry of Education, Singapore, 2007

**Professional Development**

**Skills**
- Started with ICT skills by vendors
- ICT integration into lessons by MOE
  - In 3 phases – started with core training & school-based
  - Shifted to customised programmes

**Beliefs**
- Value of ICT
  - Success stories
  - Sharing (at conferences, etc.)

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**Implementation**

- **ICT-Enabled Learning Environment**
- **Curriculum, Instruction & Assessment**
- **Professional Development**
- **Research & Development**
- **Digital Content**

Teachers ready for ICT integration?
Outline

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Summary

• The Collective Discovery Engine is an interactive visual tool to generate ideas around a topic of interest.

• Participants had diverse opinions on Social Media and Learning topics.

• Results suggest that our spatial reputation model and 2D continuous slider approach and is effective at discovering insight.

• Project is on-going and we invite you to participate:
  – http://opinion.berkeley.edu/learning/
Future Work

• How can we visualize the textual data?
• Most common approach is the word cloud.
Future Work

• Can we use the space to convey semantic meaning?
• Distributed Spectral Dimensionality Reduction.
Future Work

• Building a multi-lingual interface for grassroots engagement in developing economies.
Questions?

- For more information: http://opinion.berkeley.edu
- Contact: sanjay@eecs.berkeley.edu
Social Media Provides Learning Communities and Processes

- Jean Lave and Etienne Wenger (1991) argue a community of practice.
- Sugata Mitra self-organizing organism
- Peer-based self-directed learning online (Ito et al. 2008 Digital Youth Project)
Evaluating Our Approach

• Visualization [Faridani et al. 2010]
• Reputation model [Bitton 2011]
• Sampling method shows statistically significant reductions in preferential attachment.
Related Commercial Systems

- spigit
- IdeaScale
- openIDEO
- BRIGHTIDEA
- INNOCENTIVE
Algorithms and Models

• Reputation model that incorporates profile responses
• Uncertainty Minimizing Sampling