



April 17, 2013

The Experience API

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Agenda

- The new landscape
- Move to mobile and apps
- What are APIs? How do they help me?
- “Activity Stream” examples
- Data storage and retrieval
- Why use the Experience API in games?
- eLearning market trends
- Analytics and reporting examples
- Sample applications

How Did We Get Here?

- **Sharable Content Object Reference Model (SCORM)**
 - Enables online learning in a (desktop) browser
 - Meets requirements for which it was designed
 - Uses common launch, packaging, data model, and communication specs
 - Works (and will work in the future), but we now have many more use cases to support
- **Project “Tin Can”**

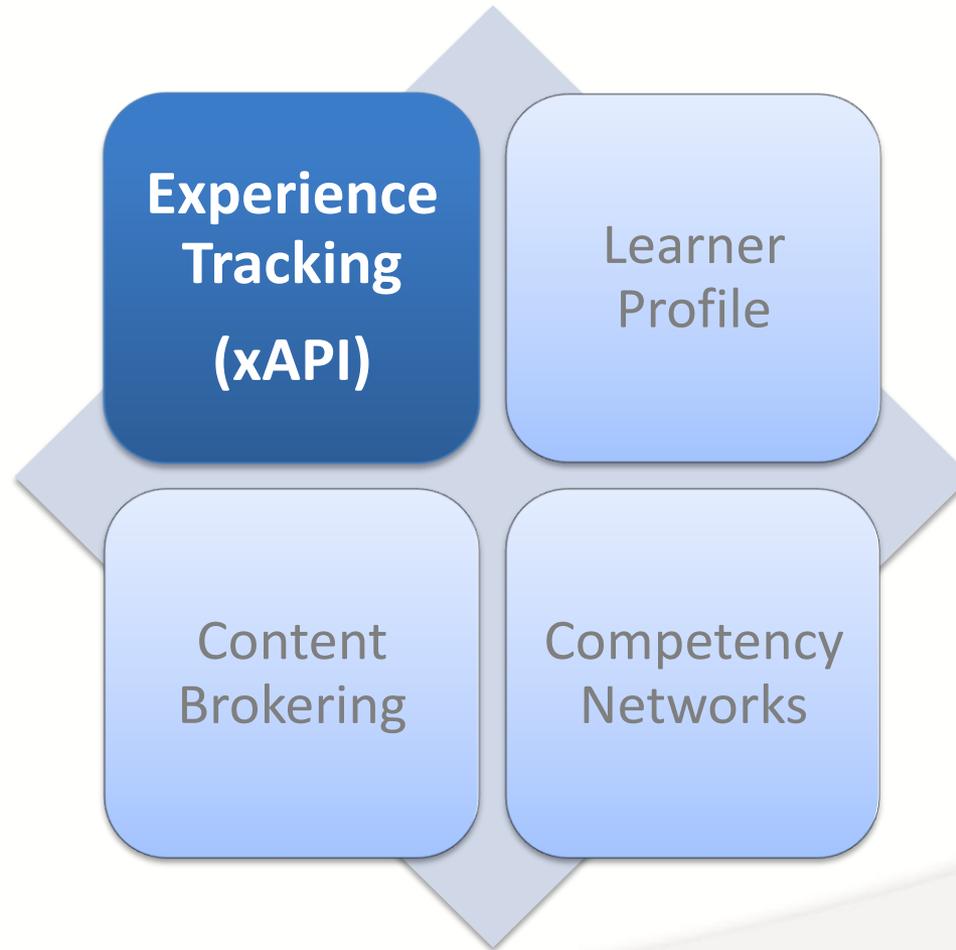
Change In Landscape

- Mobile device proliferation and app ecosystems
- Widespread wireless and Wi-Fi coverage
- Games (web, mobile, console)
- Augmented reality and simulations
- Social media
- Open source movement

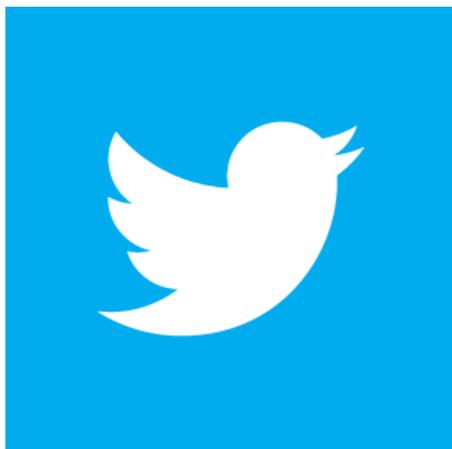
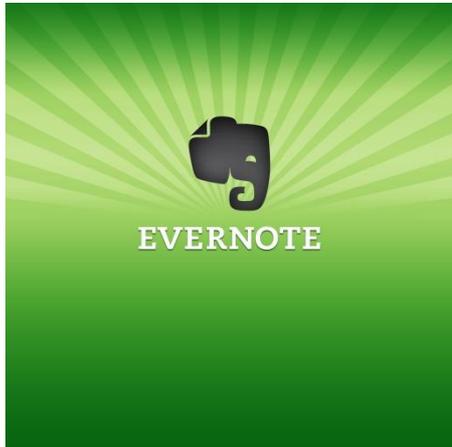


Source: <http://www.nydailynews.com/news/world/check-contrasting-pics-st-peter-square-article-1.1288700>

The Training and Learning Architecture (TLA)



How Do APIs Currently Help Me?



What is the Experience API?

- Tracks experiences, scores, progress, teams, virtual media, real-world experiences (not just completions)
- Allows data storage AND retrieval (ex. 3rd party reporting and analytics tools)
- Enables tracking mobile, games, and virtual worlds experiences
- Developed by open source community

Activity Streams

- Collaboration between Google, Facebook, Microsoft and others
- Format: <Actor> <Verb> <Object> (I did this)
 - I (actor) completed (verb) the IA course (activity)
- Allows reporting of experiences, not just completions
 - Nikolaus posted a photo
 - Nikolaus liked a photo
 - Nikolaus commented on a photo

Example (Formal) Learning Stream

- John Connor **attempted** “The War of 1812, Part 1”
- John Connor **watched** “The Battle of New Orleans Video”
- John Connor **completed** “The War of 1812, Part 1”
- John Connor **attempted** “The War of 1812, Part 2”
- John Connor **completed** “The War of 1812, Part 2”
- John Connor **attempted** “The War of 1812, Assessment”
- John Connor **answered** “Question 1” with “True”
- John Connor **answered** “Correctly”
- John Connor **answered** “Question 2” with “False”
- John Connor **answered** “Correctly”
- John Connor **answered** “Question 3” with “a”
- John Connor **completed** “The War of 1812, Assessment”
- John Connor **scored** “90%” on “The War of 1812, Assessment”
- John Connor **satisfied objective** “Battles of the War of 1812”
- John Connor **mastered objective** “The War of 1812” to level “1”
- John Connor **earned** “The War of 1812 – Level 1 Badge”

Example (Informal) Learning Stream

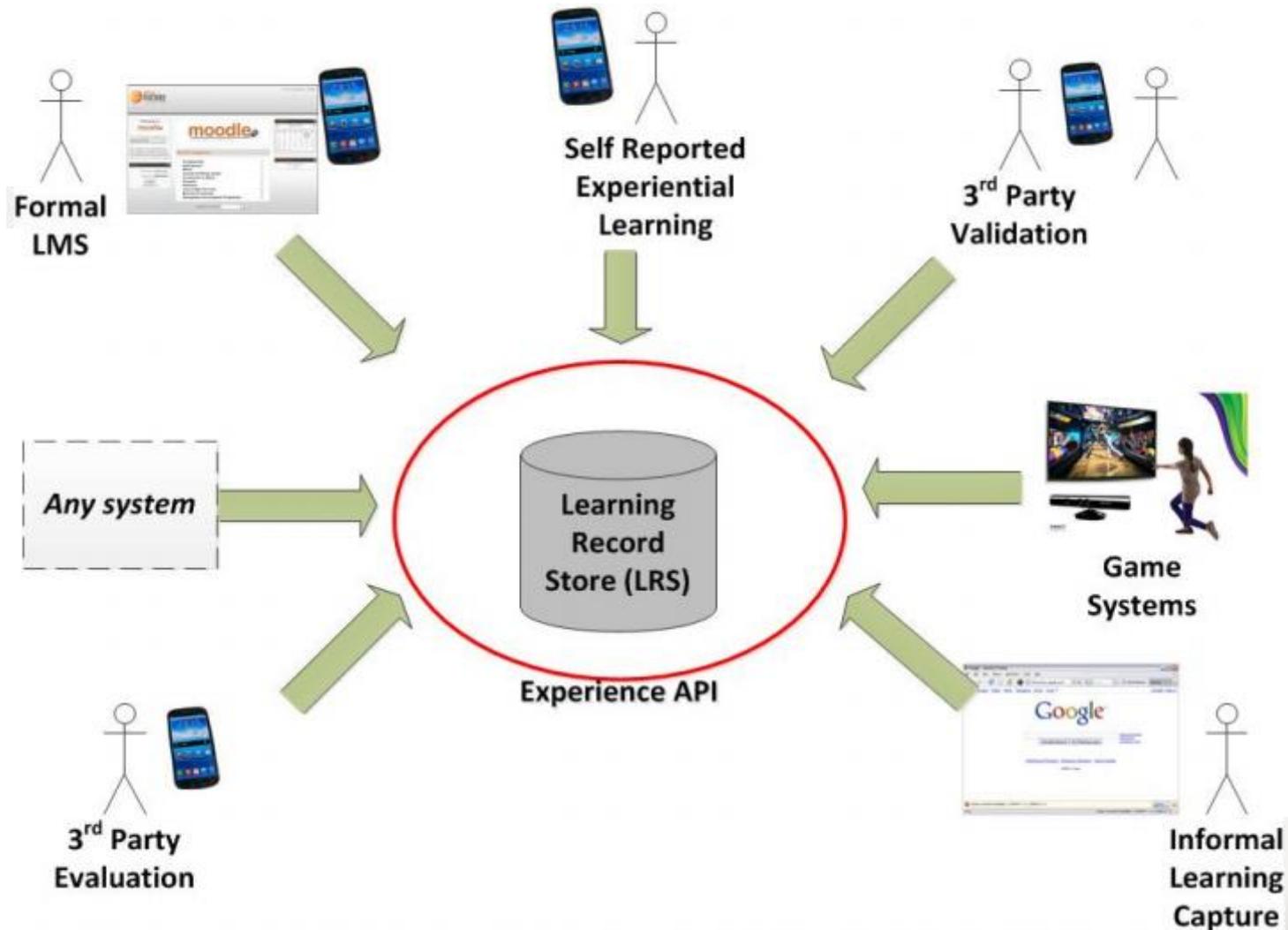
Walter Isaacson ***authored*** [Steve Jobs Biography]
David ***proofread*** [Steve Jobs Biography]
Margaret ***approved*** [Steve Jobs Biography]
Simon & Schuster ***published*** [Steve Jobs Biography]
John ***purchased*** [Steve Jobs Biography]
Ted ***read*** [Steve Jobs Biography]
Philip ***shared*** [Steve Jobs Biography]
Steven ***liked*** [Steve Jobs Biography]
Harry ***reviewed*** [Steve Jobs Biography]

How Do We Track All Of These Activities?

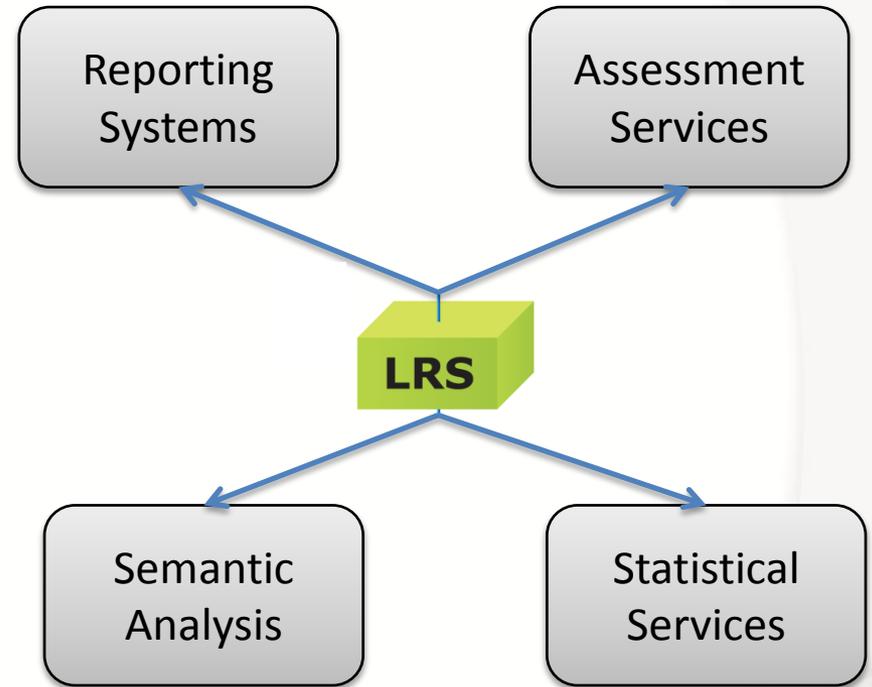


Credit: Liz Burow ([@Burlix](#))

Where Is The Data Stored?



Store AND Retrieve LRS Data



In The News...

“The [Experience API].. is the most idealistic, futuristic and flexible of the APIs; its grammar is specifically designed so that developers can collect, move and report types of educational data that haven’t even been conceived of yet.”

Source: NY Edtech Meetup Showcases New APIs for Data Interoperability and Integration
<https://www.edsurge.com/n/2013-02-26-ny-edtech-meetup-showcases-new-apis-for-data-interoperability-and-integration>

Why Use the xAPI in Games?

- Activity Streams are already used in games
- Group/Guild Learning
- Real Time Data Gathering and Analysis
- Badges and Achievements
- Analytics and Reporting
- Global eLearning Market Potential

10 Things You Should Know

1 **\$4.4tn**
2012 global education expenditure
Supported by **1.4bn** students and **62.5m** educators

2 The e-Learning market is the fastest growing market in education, standing at **\$91bn** in 2012

23%
CAGR
forecasted out to 2017

3 **700m** individuals of the world's population will lack basic literacy skills by 2015

4 The cost of education has risen **84%** since 2000, **37%** higher than CPI, which has led to situations like the US student loan debt accumulation to over **\$1tn**. e-Learning is a cost effective alternative

5 Internet users have grown **870%** since 2000 massing over **2.4bn** users globally and causing an evolutionary shift in how people can engage with the world

2.4bn internet users

6 IBIS Capital's near term view on e-Learning:

In Europe alone there are **3,000+** e-Learning companies

Consolidation will be the theme as businesses seek to expand geographic reach, scale and service offering

7 **257%**

US student tablet ownership grew **257%** last year and in 2011 technology adapted training has penetrated over **40%** of the Global 500 Fortune companies

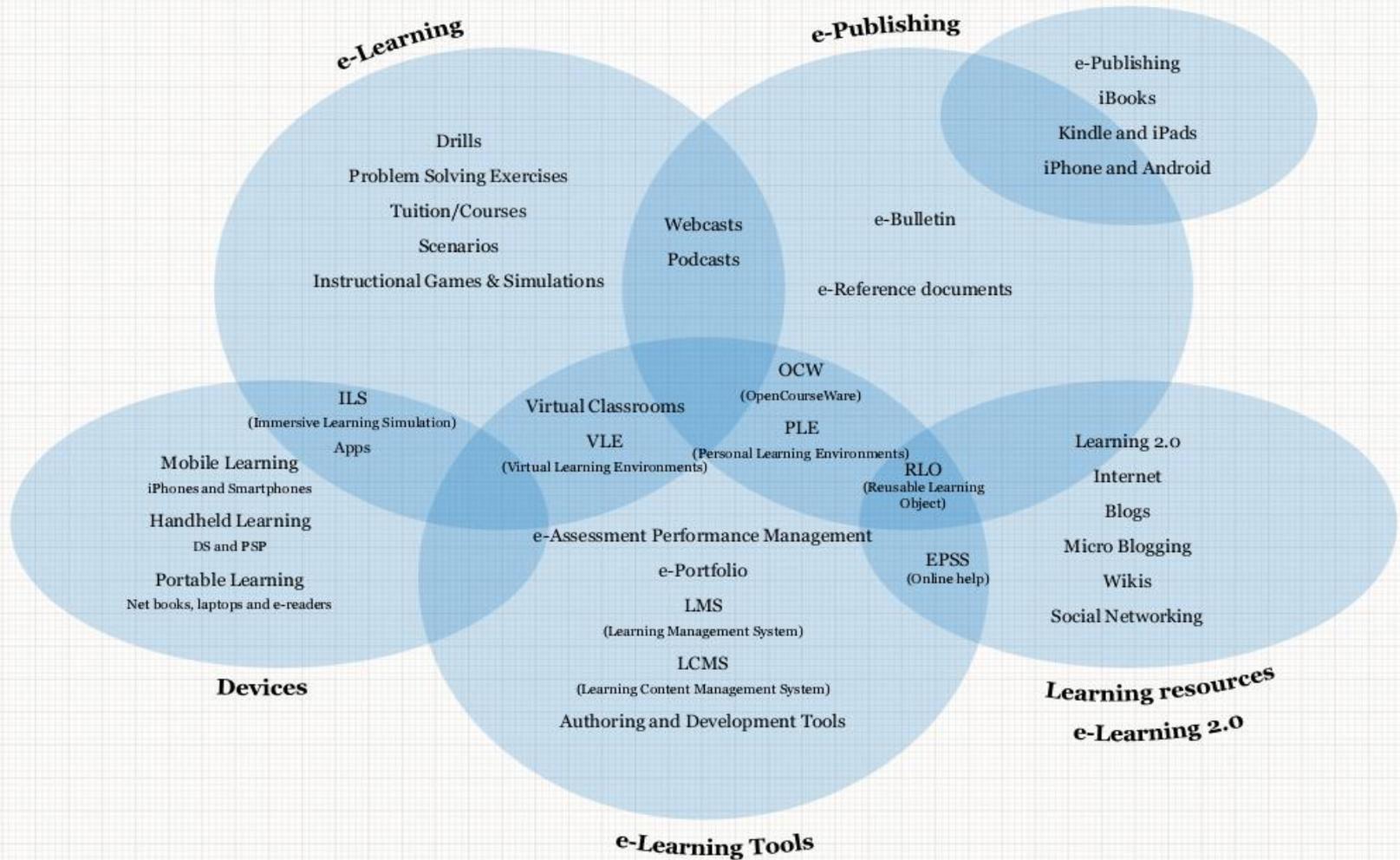


8 Current industry hype about new ideas and consumer learning requirements are disrupting the whole education eco-system

9 The US⁽¹⁾ to push forward with Project Tin Can which will set **industry-wide e-Learning standards** for software

10 IBIS Capital's hot picks for e-Learning for 2013: next generation content and its creation tools, adaptive learning, collaborative learning, Learning Record Stores (LRS), re-purposable learning, Massive Open Online Courses (MOOCs) and Open Education Resource (OER) management

The Technology Environment Allows e-Learning to Flourish



How Can You Use the xAPI?

“So some things get invented because it is suddenly possible to invent them.”

-Vint Cerf

Source: http://www.wired.com/epicenter/2012/04/ff_spotfuture_gas/all/1

Track Your Activities...



The Humane Society of the United States shared a link via
The Humane Society of the United States - Pennsylvania.
June 15 ✨

Reward offered in PA! Please share the link below with anyone who may have information about this case.



The Humane Society of the United States Offers Reward in Coatesville, Pa., Dog's Death
www.humanesociety.org

The Humane Society of the United States is offering a reward of up to \$2,500 for

Like · Comment · Share

84

76 people like this.

View all 24 comments

Write a comment...



The Humane Society of the United States shared a link.
June 15 🌐

HBO Documentary Films is kicking off their 2012 Documentary Summer Series on June 18th with "One Nation Under Dog: Stories of Fear, Loss & Betrayal". To celebrate, we want to hear your stories -- Have you ever saved a dog's life? Has a dog ever saved yours? Post them to our wall!



Sneak Peek

video.humanesociety.org

HBO's "One Nation Under Dog: Stories of Fear, Loss & Betrayal" is an eye-opening look at our relationship with dogs and how far we need to go to treat all dogs humanely, airing Mon., June

Like · Comment · Share

136

1,036 people like this.

View all 74 comments

Write a comment...

...Aggregate Them to Make Meaning



Ashley Stroba listened to Blue Moon Rising on Spotify.



- ▶ Stone By Stone Blue Moon Rising
- ▶ Marie Blue Moon Rising
- ▶ The Dust Bowl Blue Moon Rising
- ▶ Blue Moon Rising Blue Moon Rising
- ▶ I Will Come Back Again Blue Moon Rising

Like · Comment · Share · Listen · Sunday at 11:54pm



Mary Flaherty Rogers listened to Grateful Dead Download Series Vol. 11: Pine Knob Music Theater, Clarkston, MI, 6/20/91 by Grateful Dead on Spotify.



- ▶ Johnny B. Goode [Live at Pine Knob Music Theater, Clarkston... Grateful Dead
- ▶ The Other One [Live at Pine Knob Music Theater, Clarkston, M... Grateful Dead
- ▶ Stella Blue [Live at Pine Knob Music Theater, Clarkston, MI,... Grateful Dead
- ▶ Brokendown Palace [Live at Pine Knob Music Theater, Clarkst... Grateful Dead

Show 20 More Songs

Like · Comment · Share · Listen · Yesterday at 12:38pm

Rate Recently Used Apps



Renee Mazurek listened to Lucinda Williams on Spotify.



- ▶ Buttercup Lucinda Williams
- ▶ Blessed Lucinda Williams
- ▶ Right In Time Lucinda Williams

Like · Comment · Share · Listen · 23 hours ago



Terry Tomei listened to the Vibesquad Radio station on iHeartRadio.



- Size Matters Subvert
- Tauhid Boxcutter
- Cut Copy Paste ill.gates
- Warrior Concerto The Glitch Mob
- Show 5 More Songs

Like · Comment · Share · Listen · 21 hours ago

Build Recommendation Engines

Amazon Instant Video - TV

Page 1 of 9



New Release
The Event Season 1
Jason Ritter
\$0.00 
\$2.99 per episode
Why recommended?



New Release
Ax Men Season 4
\$0.00 
\$2.99 per episode
Why recommended?



New Release
Hogs Gone Wild Season 1
\$1.99 per episode
Why recommended?



New Release
The Americans Season 1
\$1.99 per episode
Why recommended?



Battlestar Galactica
★★★★☆ (308)
\$7.99 per episode
Why recommended?



› See all recommendations in Amazon Instant Video - TV

Electronics

Page 1 of 20



New Release
Roku 3 Streaming Player
\$119.99
Why recommended?



Belkin USB 2.0 4-Port...
★★★★☆ (1,410)
~~\$14.99~~ \$7.63
Why recommended?



Apple TV MD199LL / A
★★★★☆ (1,353)
\$99.00
Why recommended?



Samsung 32 GB SDHC Fl...
★★★★☆ (63)
~~\$89.99~~ \$32.95
Why recommended?



AmazonBasics USB 2.0...
★★★★☆ (212)
\$7.49
Why recommended?



› See all recommendations in Electronics

Use Data Analytics

- Visualize large datasets and make informed decisions
- Plan your learning according to previously travelled “expert” paths
- Track user progress, analyze, and group users to personalize instruction
- Use live data to drive business decisions
- Report data which was not easily gathered previously
- GOAL: Increase **PERFORMANCE**

Use Social Learning Analytics

The image shows a screenshot of a Klout profile page for the ADL TechTeam. The page is titled "Your Moments" and displays two tweets from the team. The first tweet, dated 09:05am on 06 Feb 2013, mentions the team's new Learning Record Store (LRS) for testing ExperienceAPI activities. The second tweet, dated 11:08am on 07 Mar 2013, promotes the team's website for ExperienceAPI adopters. The profile page also shows the team's Klout score of 40 and a list of influencers including ADL Initiative (score 48) and ADL Mobile Learning (score 41).

KLOUT BETA Search PERKS 1 ADL

Home Profile Friends Pulse Help

ADL TechTeam
40
The Advanced Distributed Learning (@ADL_Initiative) Technical Team
0 Tagged pages

Your Influencers [See More](#)

- ADL Initiative 48
- ADL Mobile Learning 41

Share your influencers: [Tweet](#)

Your Topics [See More](#)

Your Moments
These are your influential moments from the past 90 days.

ADL TechTeam tweeted @ADLTechTeam
40
ADL now hosting a public Learning Record Store #LRS for testing #ExperienceAPI learning activities <http://bit.ly/VRFEXr> #xapi #tincanapi
09:05am • 06 Feb 2013

retweeted you.

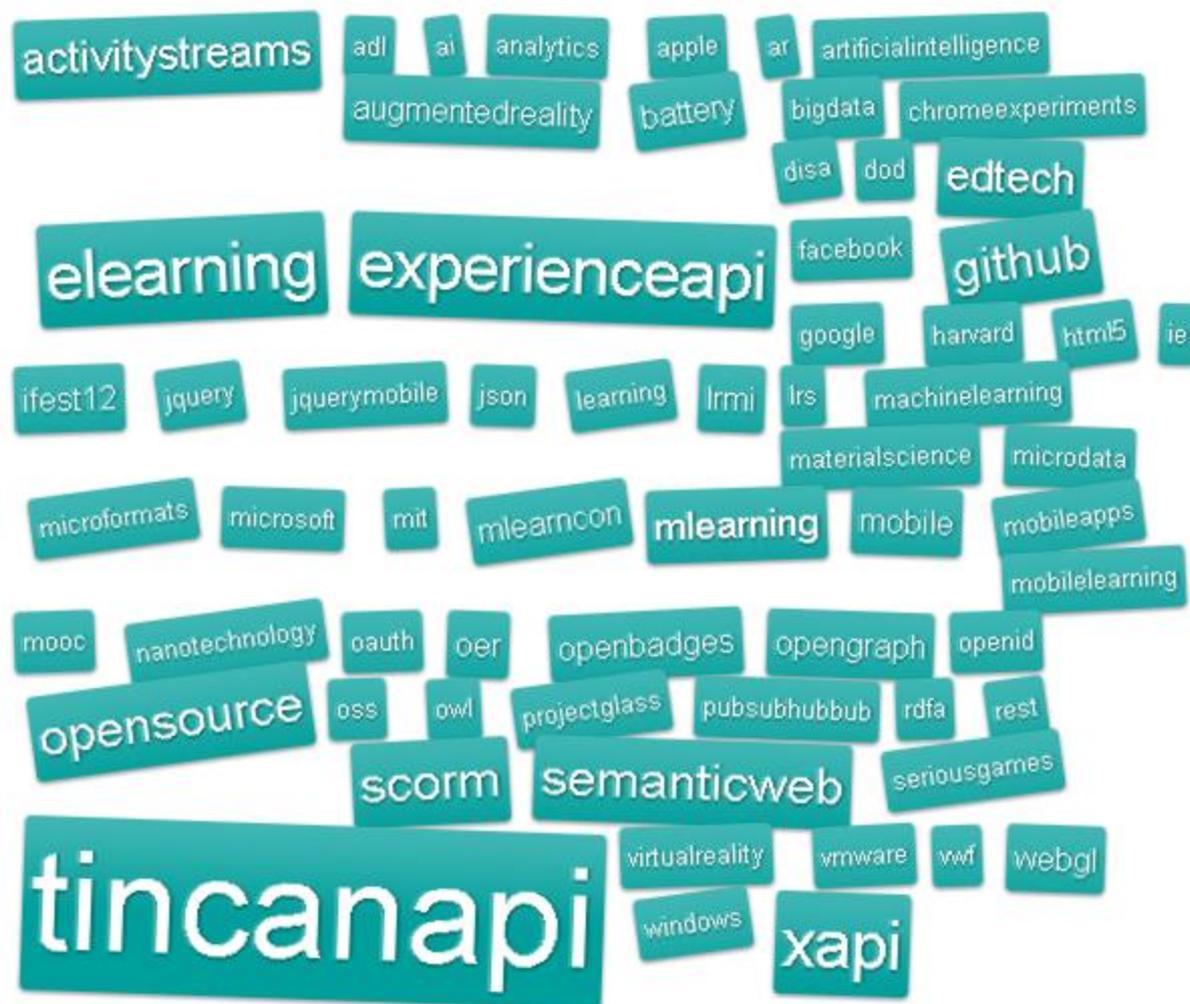
ADL TechTeam tweeted @ADLTechTeam
40
#ExperienceAPI adopters: Get your company listed on the @ADL_Initiative website! Sign up here: <http://t.co/dP2jeoFVno> #xapi #tincanapi
11:08am • 07 Mar 2013

ADL Initiative retweeted you.

Source: <http://klout.com/adltechteam>

Twitter tag cloud of @adltechteam

Last updated on 03/26/13



Source: <http://mytweetcloud.com>

Compare Social Analytics



Annalisa (my girl)

BEAUTIFUL BECKY BENI BORN BOTTLEWORKS BOTTOM BREATHE BRING CAKE
TAKE THANKFUL THINKING TIME WAIT
OVER PEACE SAFE SANFORD SOMETHING
HAPPIEST HAPPINESS HERE HOPE INEZ
COUPLE EVENT FALL FAR FOREVER FUN
ROCK TREES WEEKS WISHES JOY
AWESOME DANCE GREAT MISS FB
THANK CARRY EVERYONE
BIRTHDAY CELEBRATE ^{BIG}
^{BKI}
LOVE HAPPY ^{AGAIN} HELP
DAY FRIENDS TODAY
HUGS FAMILY HEART LIFE
MUCH THANKS WISH BOTH ^{ART}
^{ADD}
HRUSKA MOM NIKOLAUS PLEASE
ALWAYS AUGURI BDAY BEST COME EVEN
FRIEND GIGGLE GIVE GOOD GRATITUDE
ITEMS KNOW LAUGH NEAR NEED NIK OH
SPREAD START SUNSHINE SUPPORT ^{ANGELA}
AFTERNOON ALEXANDRA ARTICLE ASKING ATTENTION AUCTION AWAY BABY

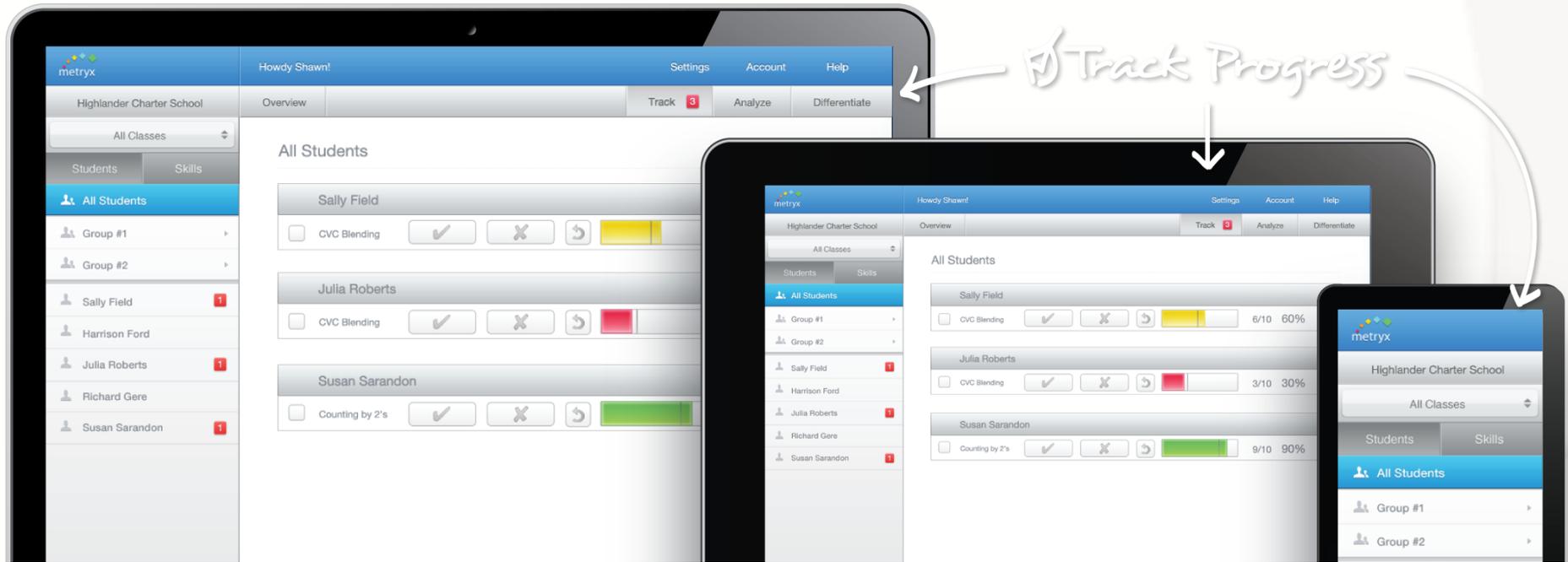


Sanford (my dog)

LEFTOVERS LOVE MAD MADE MAKE MAMA MAN'S MARX MIDDLE MONEY
GIANT GOD GREAT GROUCHO HAPPY HEAD HEAVEN HOLE HOLES HOME KEPT
CIGARS DANE DARK DIGGING DOG'S ECONOMY ENTERTAIN EXCITED EYES FACT
NOW PEOPLE WANT BEFORE BELIEVE BEST BITES FYI
YARD BARKING BETTER BOTHER
HERE HUMANS NEED BONE
DOG ^{ALLEN ANYONE BIG} JEALOUS ARNETTE AROUND IM
DOGS BIRTHDAY
ANYTHING COUCH FOOD ^{DIG}
^{DIE}
RIGHT SUCCESSFUL CAT ^{EATS}
^{BALL}
KNOW LABRADOR NEVER NEW ^{ASTHMA}
BLANTON BONES BOOK BOOMERANG BREAKDOWN BUSTED CATS CIGAR DAMN
FEELING FENCED FEW FLAVORED FORGET FRIEND FRIENDS FUNNY FURRY LOT
HOUND HOURS IMPROVED INSIDE KILLING KINKY KRYPTONITE LASER LICKING

Source: <http://www.WolframAlpha.com/facebook>

Personalize Games - Track Progress...



Source: <http://mymetryx.com>

...Analyze Results...



Source: <http://mymetryx.com>

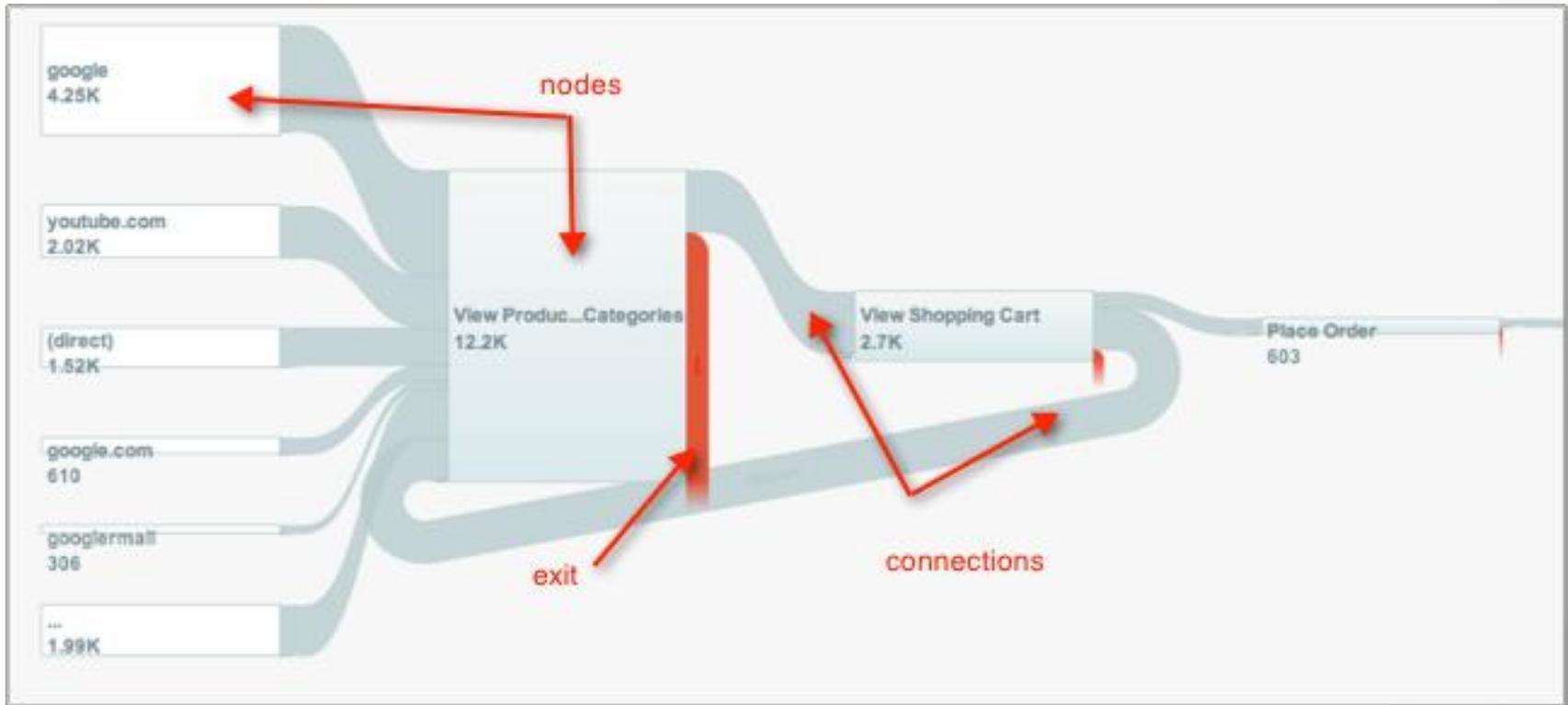
...Personalize Instruction

The image shows three devices displaying the MyMetryx interface. The desktop view on the left shows a navigation menu with 'All Students' selected, a list of students (Sally Field, Harrison Ford, Julia Roberts, Richard Gere, Susan Sarandon), and a table of student performance for 'CVC Blending' with 5 scores each at 80%. The tablet and smartphone views show a similar interface but with a simplified layout. A hand-drawn arrow points from the text 'Differentiate Instruction' to the 'Differentiate' button in the desktop view.

Differentiate Instruction

Source: <http://mymetryx.com>

Build New Reporting Capabilities



Source: <http://support.google.com/analytics/bin/answer.py?hl=en&answer=2519986>

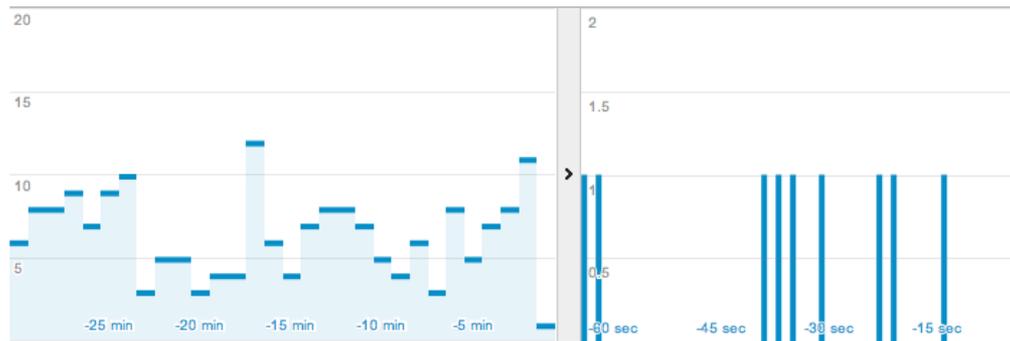
Use Live Analytics

Right now

30

active visitors on site

■ DIRECT
 ■ ORGANIC
 ■ REFERRAL
 ■ CAMPAIGN



ALL TRAFFIC

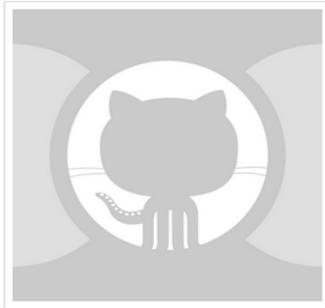
Metric Total: **30**

Rank	Medium	Source	Active Visitors	Percentage
1.	Organic	google	11	36.67%
2.	Direct		7	23.33%
3.	Referral	google.com	4	13.33%
4.	et	DiscoverList	2	6.67%
5.	feed	feedburner	2	6.67%
6.	Referral	adsense.blogspot.com	1	3.33%
7.	Referral	blog.metycea.com	1	3.33%
8.	Referral	blogger.com	1	3.33%
9.	sm	gatweet	1	3.33%

Source: <http://www.google.com/analytics>

ADL Prototypes and Examples

- ADL Prototypes
 - <http://www.GitHub.com/adlnet>
- Virtual World Framework
 - <http://vwf.adlnet.gov>
 - 3DR -> VWF -> LRS (via scripting)
- Learning Registry (bookmarklet or plugin)
- Mobile QR Code Game (Word Puzzle)
- Data Visualizations
- Bookmarklet LRS Tracking
- All are freely available (source code too) on our GitHub site



adlnet

Joined on Dec 11, 2011

19

public repos

0

private repos

13

members

Repositories

Members

Edit adlnet's Profile

Find a Repository...

All Public Private Sources Forks Mirrors



ADL_LRS

Last updated 31 minutes ago

Python ★ 17 4



vwf

forked from virtual-world-framework/vwf

Virtual World Framework

Last updated 2 days ago

Perl ★ 0 9



LR-Interface

Last updated 2 days ago

JavaScript ★ 0 0



xAPI-TestSpec

Last updated a month ago

★ 0 2



RUSSELgwt

Last updated a month ago

Java ★ 0 0



3D-Repository

Last updated a month ago

JavaScript ★ 14 3



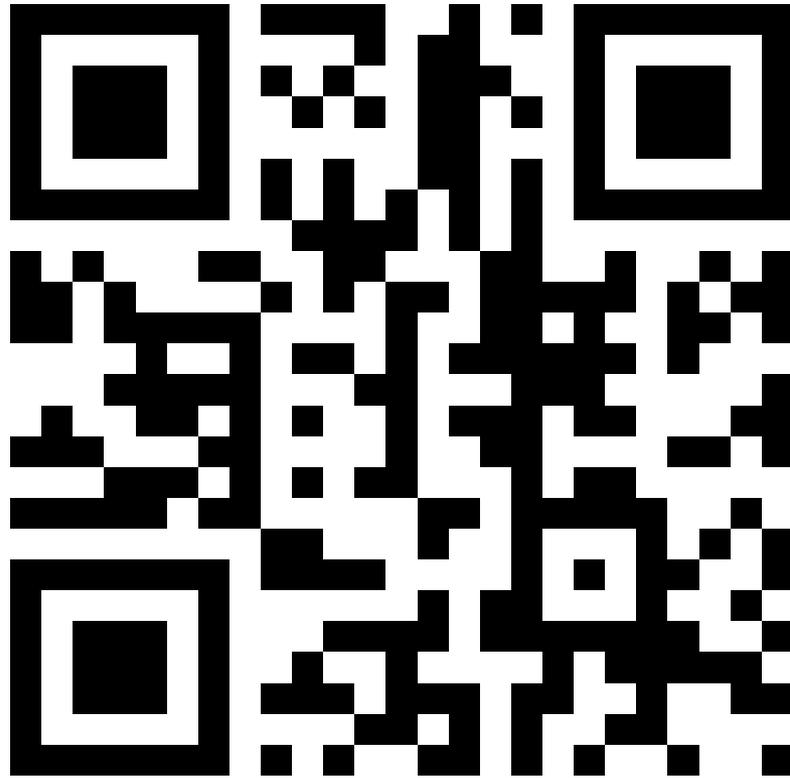
RUSSEL

RUSSEL

Last updated a month ago

JavaScript ★ 0 0

Scan QR Codes to Play (Learn)



ex. <http://www.adlnet.gov>

Mobile QR Code Game

Solve the Puzzle

e

s

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g

h

a

i

y

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n

n

t



Gameboard



Manual Entry



Leaderboard



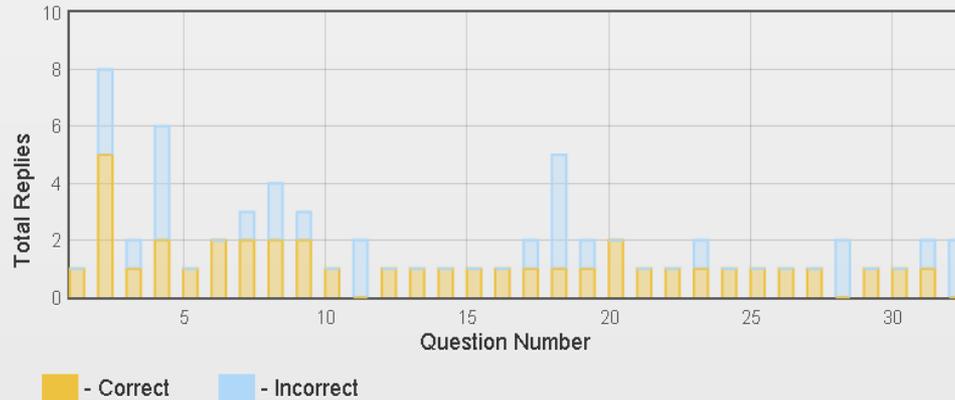
About

QR Code Game - Live Stats

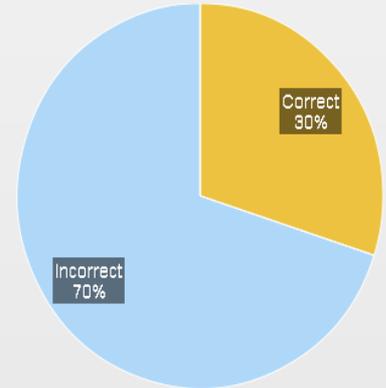
25 Players

aaa is now playing!
Alex is now playing!
Alex is now playing!
ryngme is now playing!
David I .. is now playing!
k is now playing!
C s now playing!
C h is now playing!
EricJ is now playing!

65 QR Codes Scanned



10 Solve Attempts



39 Tiles Uncovered

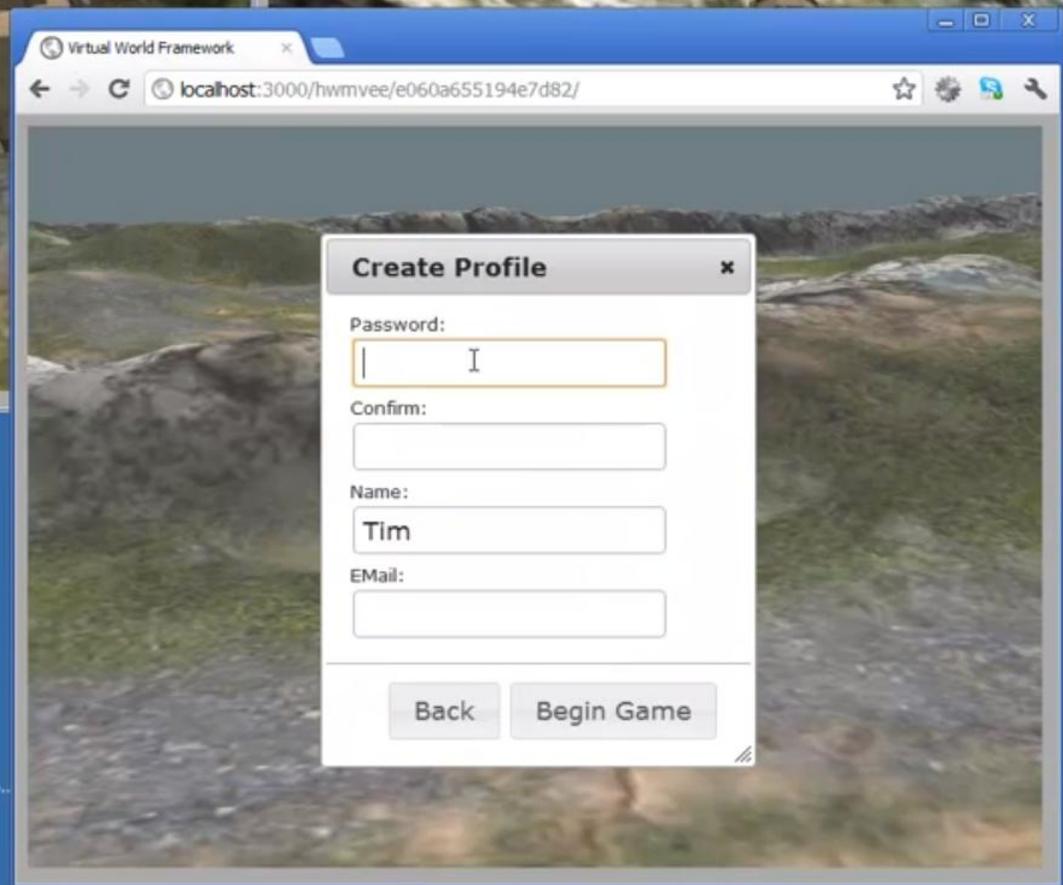
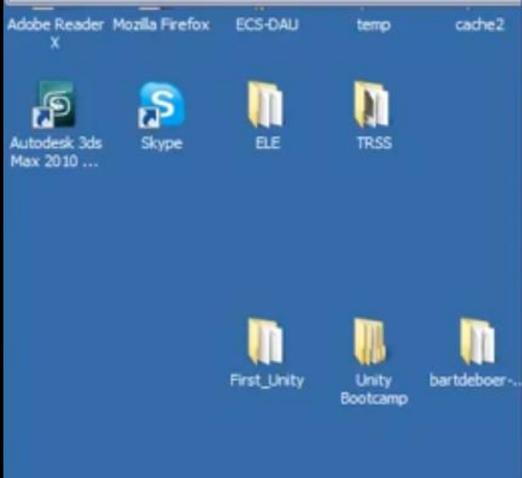
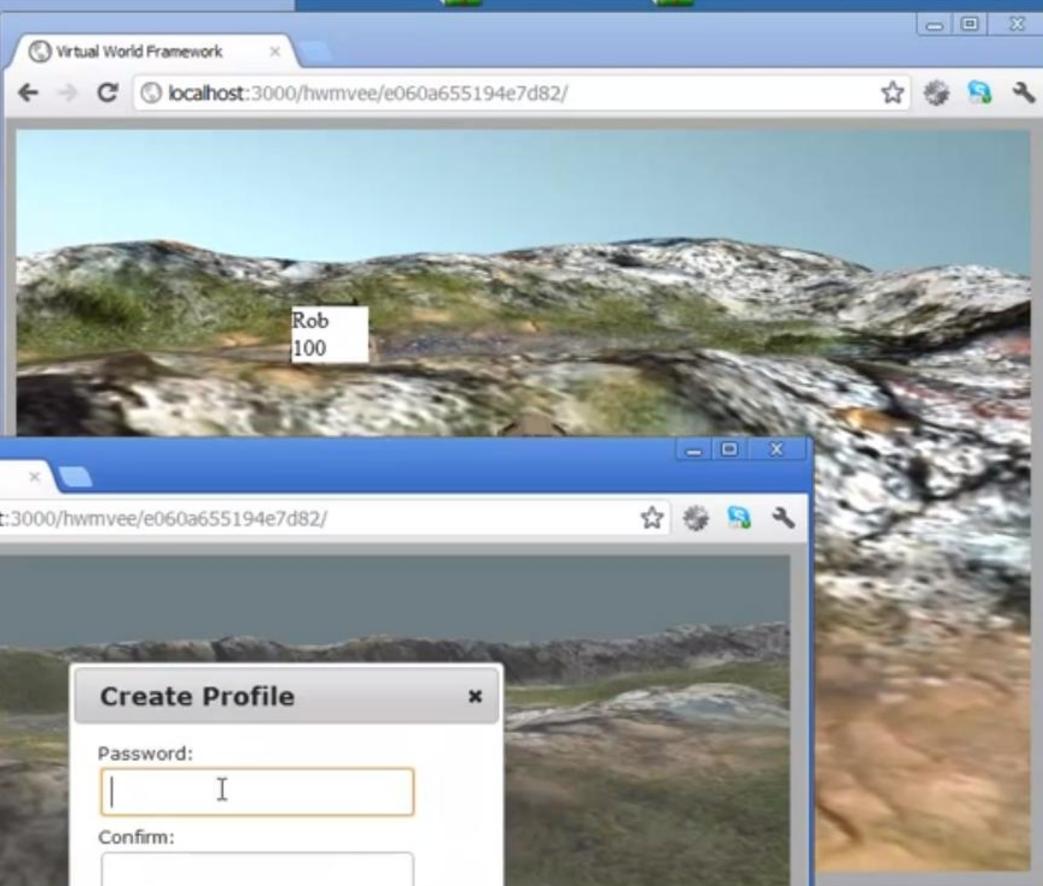
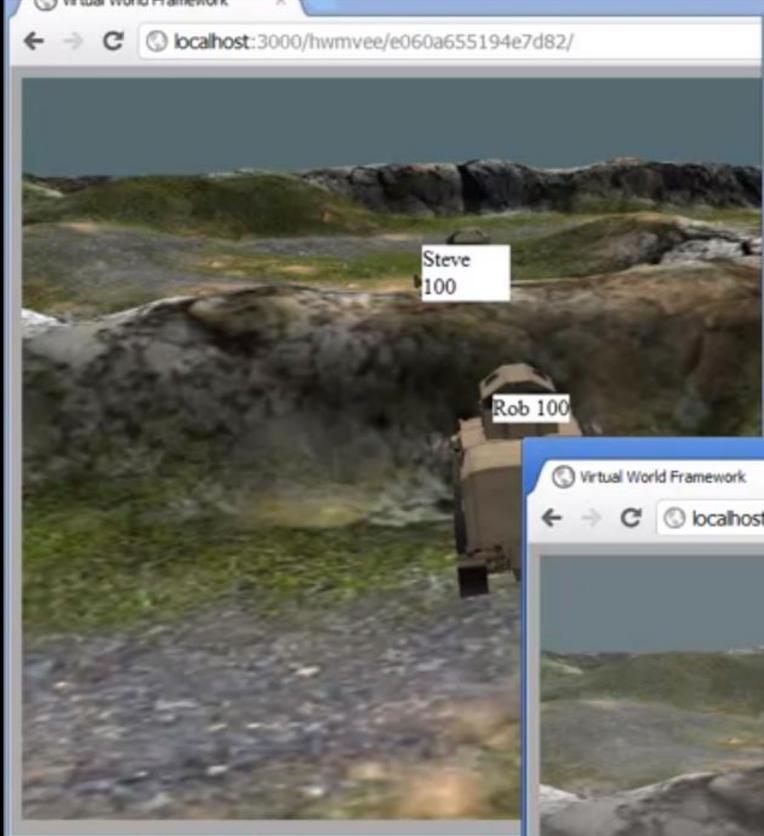
Sue got a letter!
Sue got a letter!
ryngme got a letter!
Rick got a letter!
Rick got a letter!
Rick got a letter!
Rick got a letter!
Sue got a letter!
Sue got a letter!
Sue got a letter!

Top Scanners

Sue	12
Rick F	11
Cco	10
nhr	8
Jimj	5
Mark de	5
andyj	4
Jono	4
cler	4
Eric	3

3 Puzzle Solvers

Sue solved the puzzle!
Rick solved the puzzle!
C n solved the puzzle!



What's next?

- Build vendor/user community and tool ecosystem
- Attract early adopters to build tools
- Create open source software libraries, tools, best practices, and examples
- Write articles to illustrate new capabilities enabled by using the xAPI
- Gather feedback - specification is open for public comment
- Version 1.0 release on 26 April 2013

Questions?

- Nikolaus Hruska
 - Email: nikolaus.hruska.ctr@adlnet.gov
 - Twitter: [@nikolaushruska](#)
[@ADLTechTeam](#)
[@ADL Initiative](#)
- ADL Website: <http://www.adlnet.gov>
- xAPI Resources: <http://xapi.adlnet.gov>
- ADL GitHub: <http://www.github.com/adlnet>