

Experience API

X API

A Historical Overview
&
Possible Outcomes of IMS Caliper Collaboration

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SPACE
COMMAND

“ Provide access to the highest quality education and training, tailored to individual needs, delivered cost effectively, anywhere and anytime.”

- ADL Vision

x API

one part of the solution

Learning analytics was not the only need, but is often heavily emphasized as the main purpose

SCORM Model



LMS

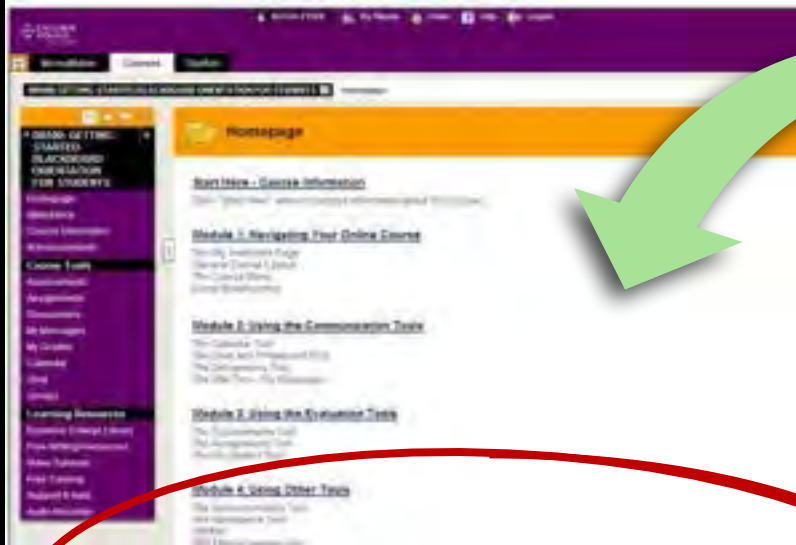
(LMS-based)

(Asynchronous)



Single Learner

SCORM Model



(Browser-based content)



Single Learner

xAPI Top Requirements

1. Should support any content types, any platform
2. Should be simple to implement
3. Should support cross-domain communication
4. Should support all types of learning experiences
5. Improved access to learning data (outside of LMS) for improved analytics & reporting
6. Improved capabilities between instructors and learners
7. Improved options for supporting unique security requirements

xAPI HIS STORY

2008

- Requirement to “modernize” SCORM communication framework (and solicit new requirements)
- Community-derived use cases, interviews, over 100 white papers

2010

- ADL Broad Agency Announcement (BAA) to research an “Experience API”

2011

- Launched BAA project (Project Tin Can) – Rustici Software

2012

- TinCan API v 0.95

2013

- xAPI v 1.0

2014

- xAPI v 1.0.2
- CoPs, Profiles, and Recipes

2015

- SCORM Profile of xAPI
- Cmi5 Profile of xAPI

2016

- Vocabulary Companion Spec & Primer
- xAPI v 1.0.3

TLA Research

Experience
Tracking
(xAPI)

Learner
Profile

Content
Brokering &
Meta
Adaptation

Competency
Frameworks

Any Learning Activity
On Any Platform

SCORMTM
Sharable Content Object Reference Model

Run Time
Environment (RTE)

Content
Aggregation
Model
(CAM)

Sequencing
&
Navigation
(S&N)

Web Browser-based
Instruction/Training

Total Learning Architecture (TLA) ✓

Experience Tracking xAPI



Learner Profile

Competency Frameworks

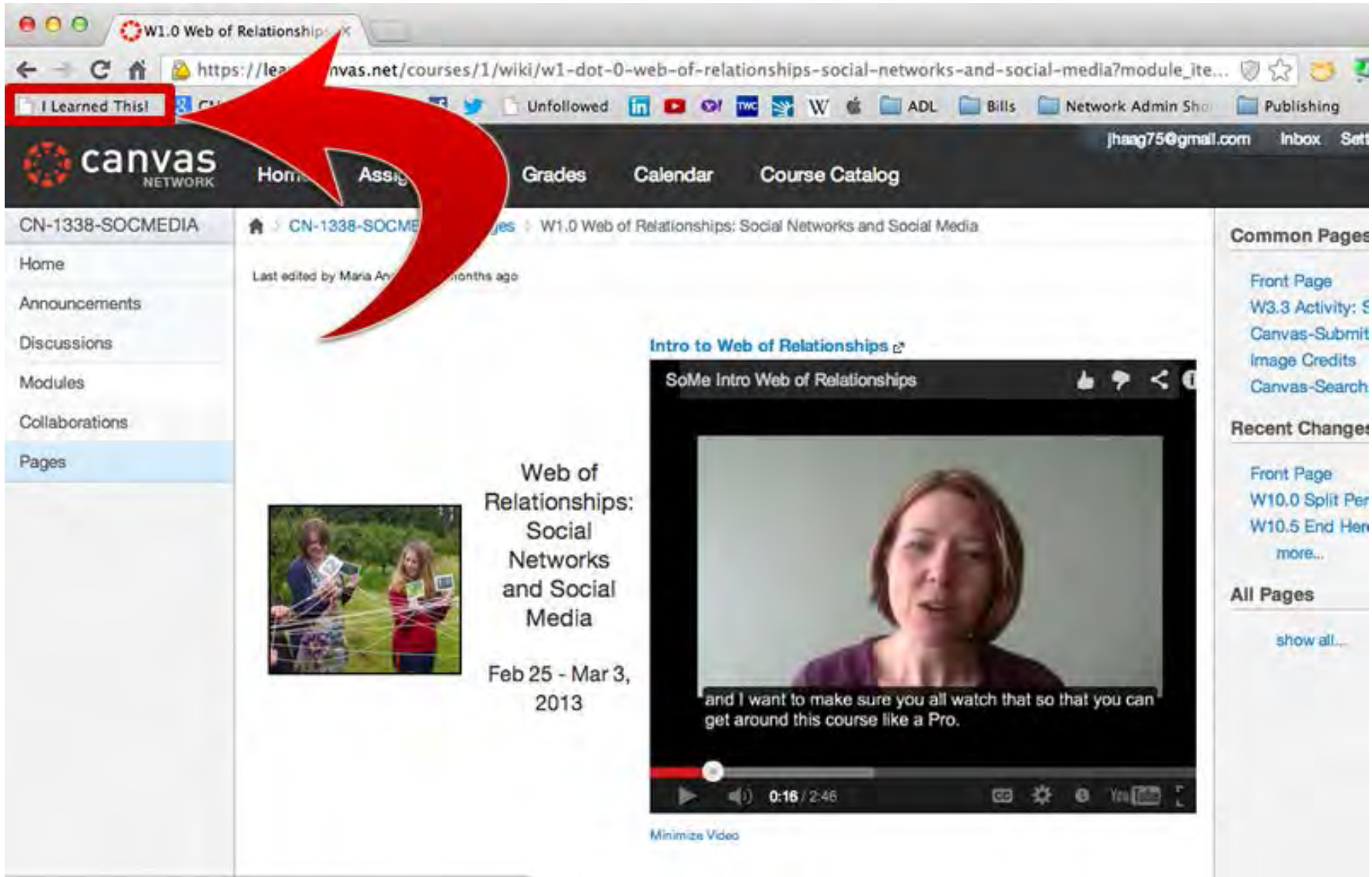
Content Brokering and Meta-Adaptation

New Tech & Methods

Next Generation Learning Ecosystem

Use Case (MOOCs)

Browser Bookmarklet (formal, informal, nonformal)



The screenshot shows a web browser window displaying a Canvas LMS course page. The address bar shows the URL: https://learningcanvas.net/courses/1/wiki/w1-dot-0-web-of-relationships-social-networks-and-social-media?module_item_id=1. The browser's bookmark bar contains several items, with "I Learned This!" highlighted in a red box. A large red arrow points from this box to the Canvas course page. The Canvas page header includes the "canvas NETWORK" logo and navigation tabs for "Home", "Assignments", "Grades", "Calendar", and "Course Catalog". The course title is "CN-1338-SOCMEDIA" and the page title is "W1.0 Web of Relationships: Social Networks and Social Media". A video player is embedded in the page, showing a woman speaking. The video title is "Intro to Web of Relationships" and the content is "SoMe Intro Web of Relationships". The video player shows a progress bar at 0:16 / 2:46. The video player has a "Minimize Video" link below it. The right sidebar contains "Common Pages" and "Recent Changes" sections.

Use Case (Mobile Apps)

SMS Learning, Social Media, E-Books



Tappestry Public Stream

★★★★
05:54 AM - June 11, 2013 in Sports

Education

 Leif Hansen
I read the Institute for the Future's (ifff.org) "Map of the Decade", "Recombinant Education" & "Internet human | Human Internet" reports

★★★★ Lake Campbell Lodging

10:21 PM - June 10, 2013 in Social Sciences

Operating Systems

 Heather Ford
I read what the new iOS7 looks like (and other tidbits) <http://9to5mac.com/2013/06/09/what-ios7-looks-like/>

Login to Tappestry to create your own Threads and connect with friends.

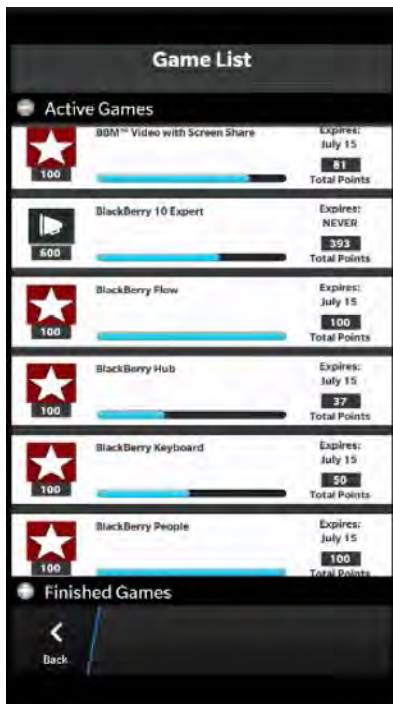
- Log in Using Facebook
- Log in Using Twitter
- Log in Using Email
- No Thanks

Terms of Use Privacy Policy

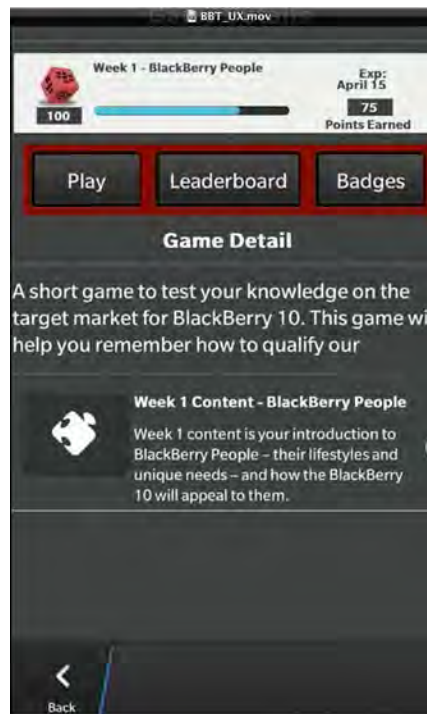


Use Case (Games)

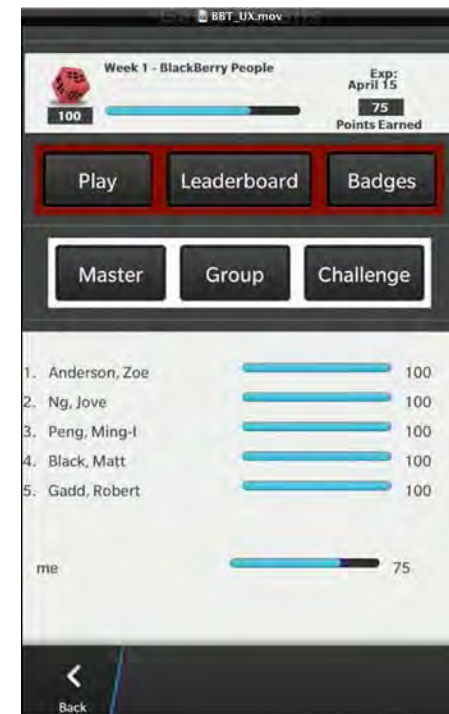
Mobile Gamification



Game List with Progress Information



Game Details, Progress & Options



Learner Status via 3 Different Leader Boards

Use Cases (Badges + Competence)

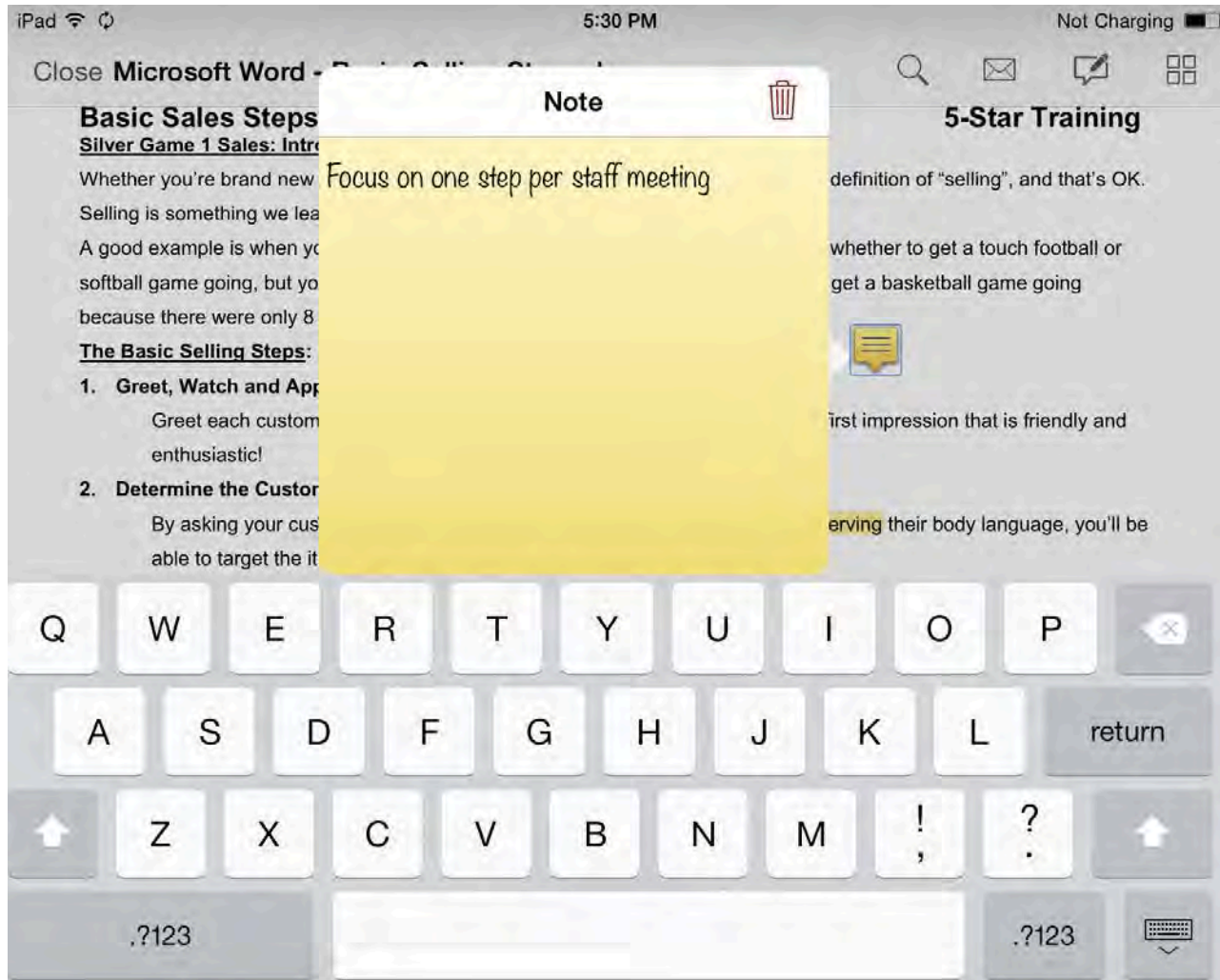
Mozilla Open Badges



- ▶ They see xAPI as complimenting Badges’ “evidence” data (add standard meaning for objectives)
- ▶ Badges as indication of competency
- ▶ Profile and vocab: <http://specification.openbadges.org/xapi>

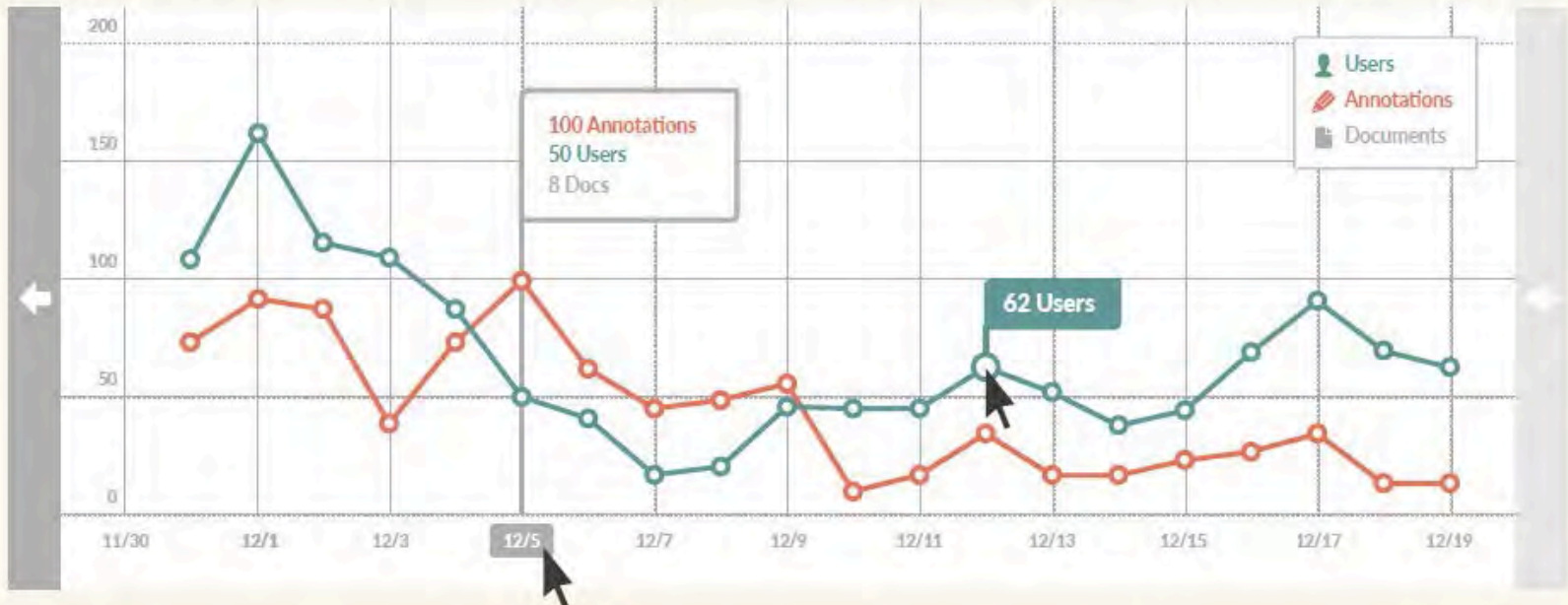
PDF Annotator (RISC/Float)

PDF Annotator & Capturing Paradata



Usage over time

Oct 22 2014 to Oct 22 2014 Top Category Apply



How are documents being used?

Which documents are being used?

NERCstandardsRC

100 Annotations 70 Users

NERCstandardsRC

Highlights

1.0 Description copy to go along with the highlights 60

Underlines

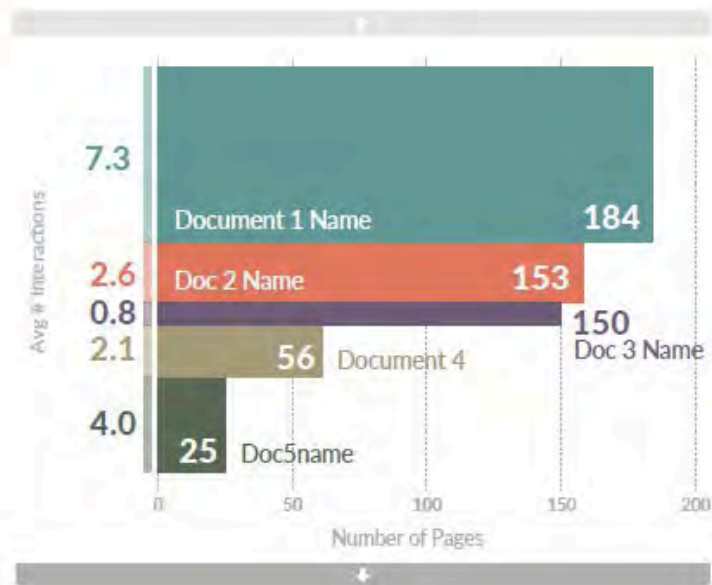
4.6 Copy that goes with the underlines section 25

Notes

2.0 Notes section description and other text 15

per

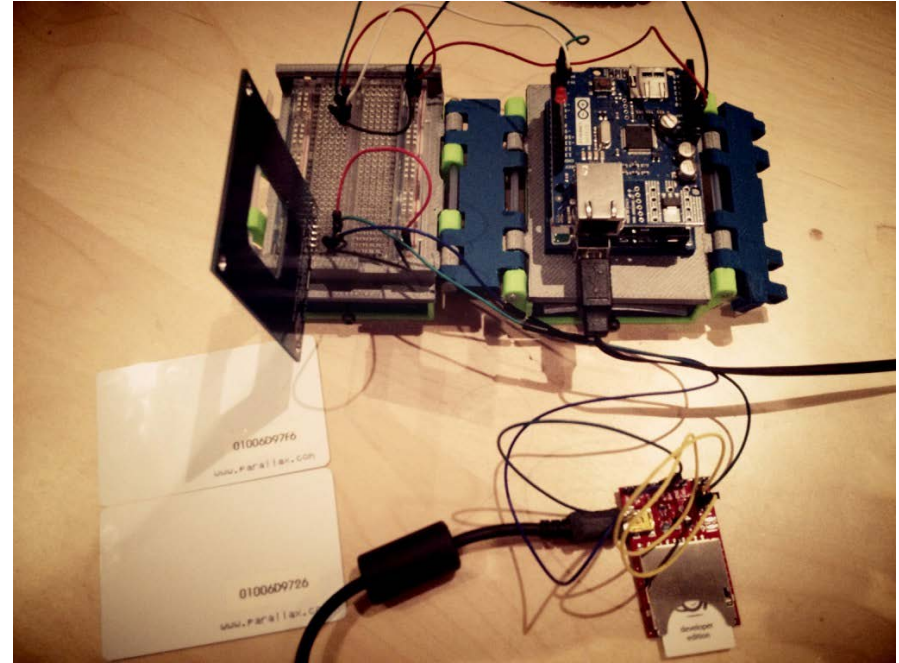
Total



Use Case (Performance + Sensors)

Psychomotor Domain?

- ▶ Procedural tasks (guided response)
- ▶ Evaluation by instructor, mentor may be required for accurate assessment
- ▶ Mobile capture using camera?
- ▶ Using sensors to report xAPI Statements
- ▶ Potential feedback loop



**RFID + Arduino + ElectricImp + xAPI,
LRS**

Radio Frequency Education RFED

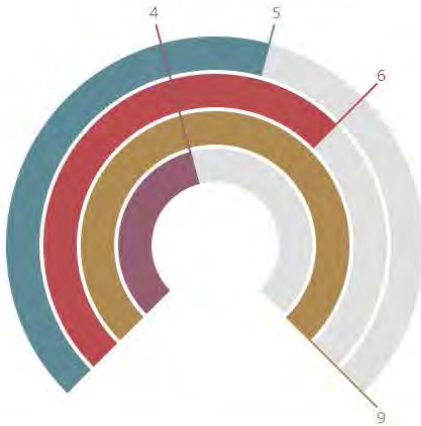


Mobile + xAPI + RFID Tags – Ann Arbor Hands On



EXHIBIT ACTIVITY

Total number of interactions per exhibit



USER ACTIVITY

Total number of interactions per user



USER DETAIL (ACTIVITY STREAM)

REFRESH



Barbara McClintock answered "Parts of me look cooler because I see blue colors after I move" on **Infrared Q3**
a few seconds ago



Cecilia Payne-Gaposchkin answered "Infrared light is too bright for us to see" on **Infrared Q2**
a few seconds ago



Edwin Armstrong finished **Blast Off!**
2 minutes ago



Alan Turing answered "The rocket flies higher with higher psi levels" on **Blast Off Q4**
2 minutes ago



Mary Anning answered "It isn't big enough to get into space" on **Blast Off Q3**
2 minutes ago



Amar Bose finished **Ferrofluid!**
5 minutes ago



George Washington Carver answered "Because the magnets cause the iron particles in the ferrofluid to clump together" on **Ferrofluid Q3**
5 minutes ago



Ida Noddack answered "Light waves that objects reflect based on smell" on **Infrared Q1**
5 minutes ago



Gertrude Elion answered "The ferrofluid becomes a solid when exposed to the magnets" on **Ferrofluid Q2**
5 minutes ago



Gustave Eiffel viewed the "design" section on **Building Q2**
5 minutes ago



Rita Levi-Montalcini answered "..." on **...**
5 minutes ago



Ida Noddack finished **Infrared Q1**
8 minutes ago



Ida Noddack viewed the "..." section on **...**
8 minutes ago



Ida Noddack viewed the "..." section on **...**
9 minutes ago



Ida Noddack answered "Parts of me look cooler because I see blue colors after I move" on **Infrared Q3**
9 minutes ago



Ida Noddack answered "Infrared light is too bright for us to see" on **Infrared Q2**
9 minutes ago



Ida Noddack answered "X-rays are a form of electromagnetic radiation" on **Blast Off Q4**
9 minutes ago



Gustave Eiffel viewed the "design" section on **Building Q2**
10 minutes ago



Gustave Eiffel viewed the "design" section on **Building Q2**
10 minutes ago



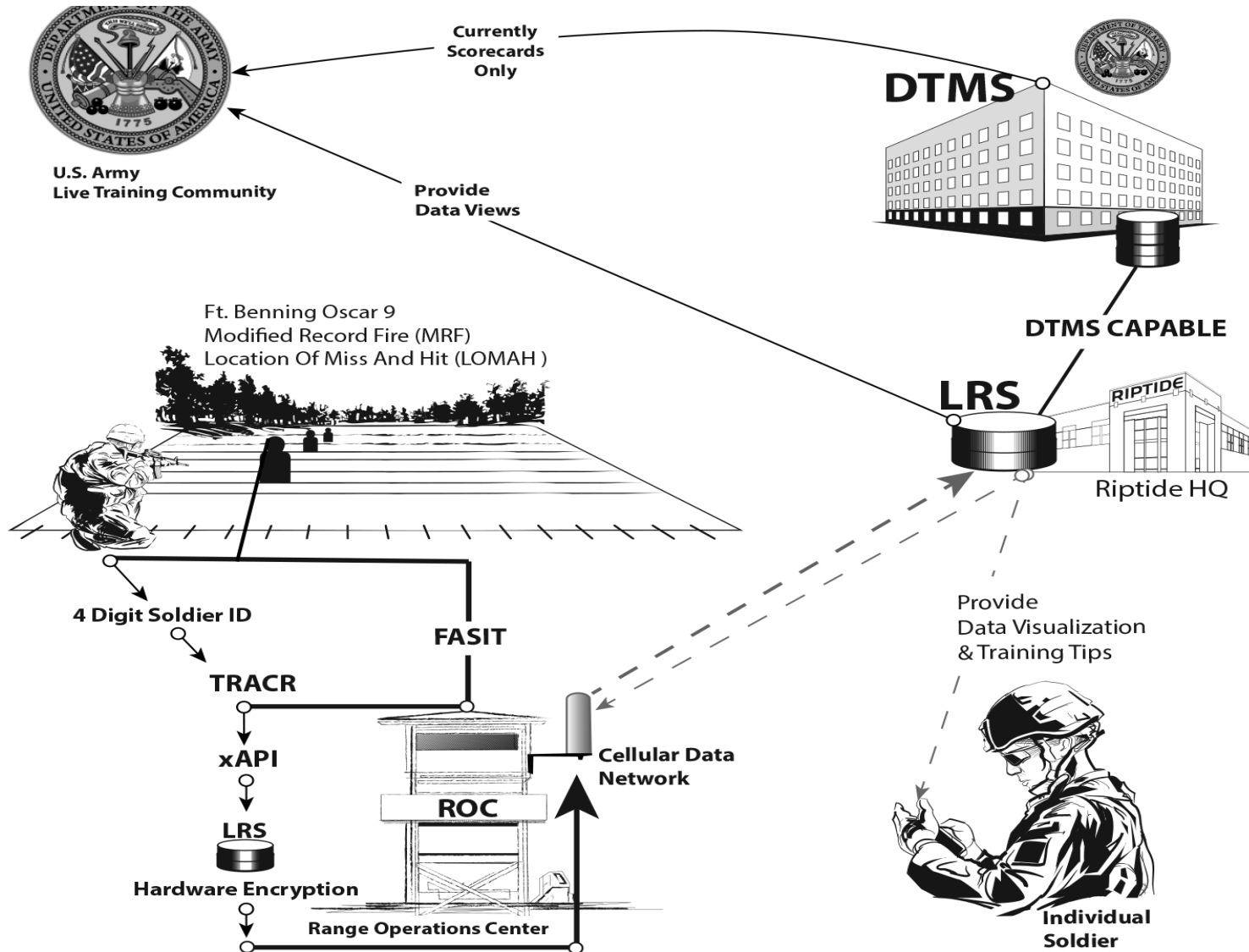
Hypatia of Alexandria answered "..." on **...**
11 minutes ago

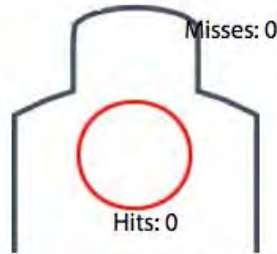


REAPER (Army / Riptide Software)



Data Mining Live Training Ranges



**175M****300M****175M**

Go	No Go
0	1

300M

Go	No Go
0	1

Unit: Unit4
Date: 09/25/2014
Range: Ft.

ID: 1047

Go
✘ No Go
 Viewed Training
 1 Attempt

175M

40 shots
 28 kills
 28 hits
 12 misses

300M

0 shots
 0 kills
 0 hits
 0 misses

Attempt #1**175m**

40 shots
 28 kills
 28 hits
 12 misses

Heat Map



Your shot group results indicate the following fundamental training should be reviewed: Trigger Squeeze

[Steady Position](#)[Proper Aim](#)[Breathing](#)[Trigger Squeeze](#)

Android Wear (Gear Live)

Live action emergency/medical field scenarios



- job search
- LinkedIn
- Startups
- Popular Posts

CRUNCH NETWORK

Why LinkedIn should kill the résumé and replace it with the experience graph

Posted 4 hours ago by **Garry Golden** (@garrygolden)



SPONSORED CONTENT

Sponsored By **Braintree**



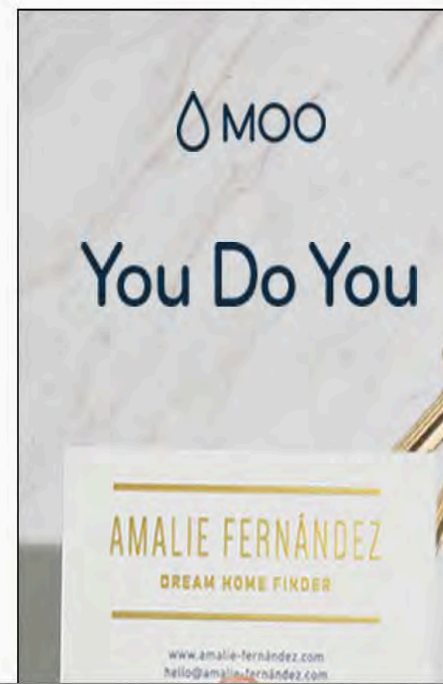
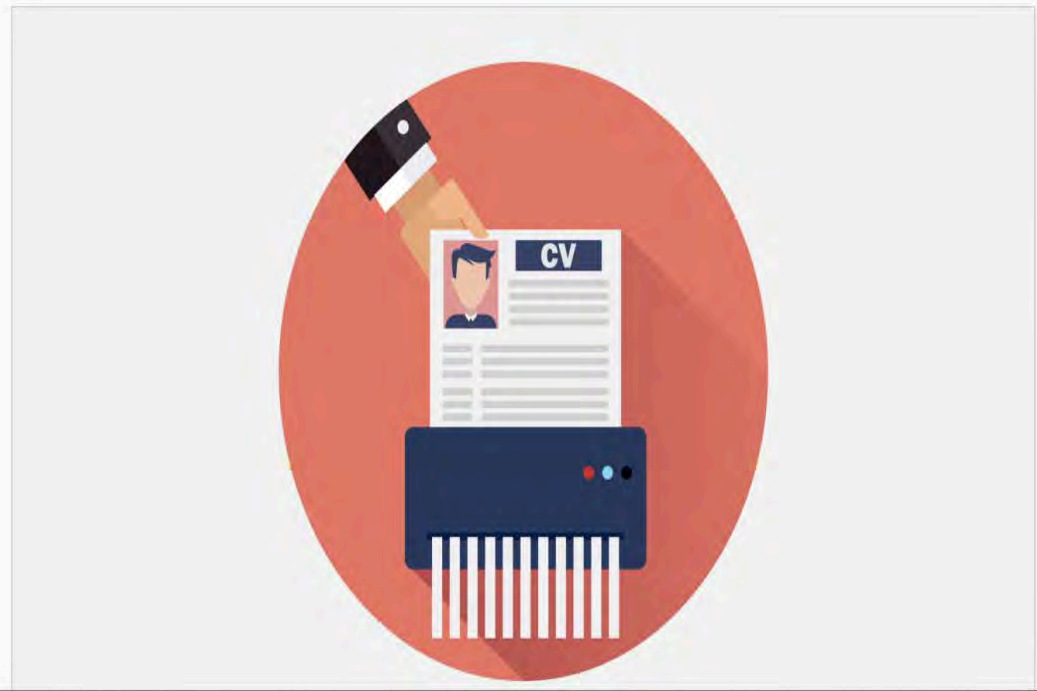
Waiting days for your transactions to clear will be a...



Doug gets a blower for his bed
3 days ago



Flex, a tampon alternative you can wear during sex, just raised \$1 million
4 days ago



Possible Collaboration Outcomes

- 1. Identify Key Features.** For example: storage options, sub APIs, differences and similarities between xAPI vocabularies, profiles, and recipes compared to the Caliper information model and metric profiles.

Possible Collaboration Outcomes

- 2. Identify Technical Integration Points.** Determine if it is technically feasible to harmonize both specifications based on key features, data models, security, privacy, transport mechanisms, etc.

Possible Collaboration Outcomes

- 3. Terminology Harmonization.** Determine if it is semantically possible to compare the terminology or harmonize the specs to “sound” more like each other with agreed upon language.

Possible Collaboration Outcomes

- 4. Convergence or Compatibility.** Determine if convergence into one specification and eventually, a standard is possible, and if not then if a crosswalk of data models a suitable option to support compatibility.

Possible Collaboration Outcomes

- 5. Clarity.** If none of the aforementioned outcomes are possible then establish clear messaging, agreed upon by both communities of when to use Caliper and when to use xAPI. This helps customers understand value proposition.

Caliper + xAPI Interest

- 53% would like to see Caliper and xAPI converge, 33% not sure
- 78% would like to see a crosswalk/mapping of the data models and think it would be beneficial to both communities
- 38% of the respondents have already begun work on comparing the two specs and are willing to share their findings
- **We can't do this without YOU!**

Thank You

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