

xAPI in Practice

Using xAPI to Track Mobile
Performance Support



PEREGRINE

PERFORMANCE GROUP

WE ENABLE SUCCESS



Today's Plan

- Who are we? Why are we here?
- The idea
- Questions we wanted to answer
- Getting started with xAPI
- Demonstration
- Industry thought leaders and resources



We Are: Workforce Performance Improvement

Peregrine Performance Group helps business leaders help their teams perform better—including sales, operations, customer service—via the development and/or improvement of training and training support tools.

We have strong bias toward performance-based training—training that helps users DO something new or better or differently that contributes to the business/organization in a meaningful way.

We Are: Workforce Performance Improvement

Peregrine Performance Group helps business leaders help their teams perform better—including sales, operations, customer service—via the development and/or improvement of training and training support tools.

Some of the services we offer:

- Performance Consulting

- Performance Support

- Online Training

- L&D Technology

- Instructor-led Training

- Organizational Development

- Preparation for Performance Improvement

- Evaluation of Training

- Leadership Support

- Creative Support

Today's program touches on

We Are: Helping U.S. and Global Teams



abbvie



TEXACO



Genentech



SUNGEVITY

CONRAD
HOTELS & RESORTS™



GoDaddy



ThermaSource

Food, Bev,
Hospitality

Biotech,
Pharma

Hi-tech

Financial

Other

About the Audience

Please tell us about:

1. Your familiarity w/ xAPI
2. Role(s) you play in your organization
3. Why you're here (the business reasons behind your interest in xAPI)
4. Your/your organization's strength of interest in developing a mobile performance support app that uses xAPI



QUICK
POLL

What is xAPI? Why is it important?

What it is

“ The Experience API (or xAPI) is a new specification for learning technology that makes it possible to collect data about the wide range of experiences a person has (online and offline). It captures data in a consistent format about a person or group’s activities from many technologies. ”

from xAPI.com

Why it’s important

- Enables the tracking of behaviors and interactions—tracking of virtually anything you consider meaningful for achieving (or not achieving) goals and objectives
- Enables the linking of learning activities with business performance

The Idea – The Sungevity Story

- Solar power company, rapid growth
- Inconsistencies in system installations
 - Relied on independent contractors to install and connect systems
 - Used employees, field technicians, to perform post-installation quality checks
- Hired Peregrine to
 - Design, develop system for training auditors/QA technicians—including training and job aids
 - Analyze sales and operations processes
- To standardize installation audits, we developed job aids

What is an exemplary job-aid?

- Repository of information, processes, perspectives
- External to the individual
- Supports work activity
- Directs, guides, and/or enlightens
- Works very well (it's been tested, revised)

The Idea

What if we could put a tool in the hands of the senior installers that would enable them to share their know-how so that every installer always has access to the 'right-way' of doing it?

The Idea

They already have part of the equation:



81% of U.S. adults own a smartphone

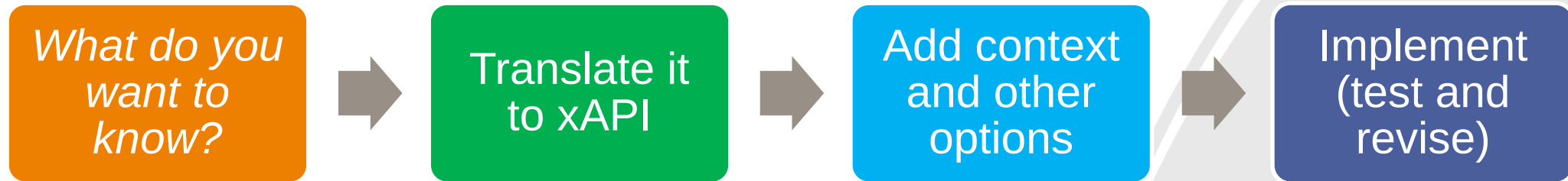
Pew Research Center *Mobile Fact Sheet*

The ubiquitous smartphone

The Idea

- Mobile app for creating job aids to support performance
- **Accomplished performers** share expertise instantly with co-workers
- Workforce has access to expertise instantly, anywhere and everywhere
- User-generated content—those doing the work have the best, most relevant know-how
- Subject matter experts and IDs can review and edit
- Mobile devices enable media-richness (video, audio, graphics, text)
- Using xAPI, **you can track anything and everything**

Getting Started – The Process



What Do We Want to Answer?

Some of the questions that drove our first iteration:

- Who creates a job-aid?
- What are they creating—type/style, content?
- Who uses it? When do they use it?
- What are they using?
- How are they using it?
- How *often* are they using it?



What Do We Want to Answer?

Discover additional questions and insights

- Why are they creating job aids?
- For whom/what purpose are job aids created?
- Who are my experts/accomplished performers?
- Uncover performance issues and lack of knowledge
- What does and a does not align with organizational goals and objectives?

What Do You Want to Know?

Important initial step: list the **experiences** you want to know about. In our case we wanted to know when a user:

- Began creating a job aid
- Edited a job aid
- Viewed a job aid
- Searched for a job aid
- Posted a job aid
- Added media to a job aid

xAPI is all about tracking the experiences the user/learner/performer has.

Experiences can be anything you deem meaningful for the purpose of achieving or not achieving goals and objectives.

xAPI vs. SCORM

xAPI can track learning where, how, and when it happens

	SCORM	xAPI
Track completion	✓	✓
Track time	✓	✓
Track pass/fail	✓	✓
Report a single score	✓	✓
Report multiple scores		✓
Detailed test results		✓
Solid security		✓
No LMS required		✓
No internet browser required		✓
Keep complete control over your content		✓
No cross-domain limitation		✓
Use mobile apps for learning		✓

	SCORM	xAPI
Platform transition (i.e. computer to mobile)		✓
Track serious games		✓
Track simulations		✓
Track informal learning		✓
Track real-world performance		✓
Track offline learning		✓
Track interactive learning		✓
Track adaptive learning		✓
Track blended learning		✓
Track long-term learning		✓
Track team-based learning		✓

What Do You Want to Know?

Gather and organize the experiences

Description
Began creating a job aid
Posted a job aid
Made edits to a job aid or added media
Searched for a job aid by a keyword
Searched for a job aid by a tag
Viewed a job aid
Viewed specific steps in a job aid
Departed a job aid
Shared a job aid
Decided to not create a job aid
Provided annotations on a job aid (includes any rating system in place)
Logged in
Logged out
Got media to be used in a job aid

Adapted from eLearning Guild

[The Experience API – Liberating Learning Design](#)

by Peter Berking, Steve Foreman, Jason Haag, Craig Wiggins

Translate to xAPI – Statements

Translate the experiences using the components of an xAPI statement.

The Basic xAPI Statement



Translate to xAPI – Example

Translate the experiences using the components of an xAPI statement.

Joe posted a job aid translates to

Actor/Agent	Verb	Object
Joe	completed	job aid
joe@peregrinepg.com	http://adlnet.gov/exapi/verbs/completed	http://peregrine.us.com/xapi/objects/jobaid/E4130718-9319-6A91-FF2E-58A3B32D6800

Where do the verbs come from?

When *Actor* is a person, it's called an Agent

The thing on which action is taken – it can be an

- Activity
- Agent or group
- Statement or sub-statement

Translate to xAPI – CoPs

Where do the verbs come from?

- Controlled vocabularies defined by [profiles](#)
- Each profile defines application specific vocabulary, extensions, and statement templates for specific use case or implementation

xAPI Vocab Server		HOME	BROWSE	CONTACT	RETURN TO TOP	
	https://w3id.org/xapi/dod-isd/verbs/compiled	"compiled"@en		"Collect information in order to produce something. Use with the 'KSA' extension with a value of 'K', with the 'category' extension with a value of 'Rule Learning', and with the 'interactivity level' extension with a value of 1 or 2."@en		
	http://adlnet.gov/expapi/verbs/completed	"completed"@en		"Indicates the actor finished or concluded the activity normally."@en		
	https://w3id.org/xapi/dod-isd/verbs/completed	"completed"@en		"Make something whole or perfect. Use with the 'KSA' extension with a value of 'A', with the 'category' extension with a value of 'Responding', and with the 'interactivity level' extension with a value of 2, 3, or 4."@en		
	https://w3id.org/xapi/dod-isd/verbs/completed-assignment	"completed assignment"@en		"Finish making or doing a given task. Use with the 'KSA' extension with a value of 'A', with the 'category' extension with a value of 'Responding', and with the 'interactivity level' extension with a value of 2, 3, or 4."@en		
	https://w3id.org/xapi/dod-isd/verbs/complied	"complied"@en		"Act in accordance with a wish or command. Use with the 'KSA' extension with a value of 'A', with the 'category' extension with a value of 'Responding', and with the 'interactivity level' extension with a value of 2, 3, or 4."@en		

Translate to xAPI – CoPs, continued

Current profiles in the directory at ADL include:

- ADL – Common learning experiences
- Video
- Across X - Chinese community
- CMI5
- GBLxAPI – K-12 apps and games
- E-Books
- Virtual Patient - Healthcare
- Serious Games
- SCORM
- DOD ISD – Military

The Advanced Distributed Learning (ADL) Initiative is government program reporting to Deputy Asst. Secretary of Defense for Force Education and Training (DASD (FE&T))

Falls under Office of the Asst. Secretary of Defense for Readiness.

ADL provides core, common vocabulary.

Translate to xAPI – Matching with Verbs

Match your experiences with the profile verbs

Actor/Agent	Verb	Description
User	Logged-in	Determine which user is using jobaidr, when, and for how long
User	Logged-out	Determine which user is using jobaidr, when, and for how long
User	Searched	Determine which user searched for a job aid and what term they searched by
User	Searched	Determine which user searched for a job aid and what tag they searched by
User	Initialized	Determine which user starts creating a job aid
User	Abandoned	Determine which user started creating a job aid and then canceled
User	Completed	Determine which user posts a job aid, what is the title, what is the subject, and how is it tagged.
User	Interacted	Determine which user made changes to a job aid, its title, description, and tag.
User	Interacted	Determine which user added a video, what it's title is and to which job aid title, the job aid description and job aid tag.

Translate to xAPI – Adding Objects

Add your objects

Actor/Agent	Verb	Object	Description
User	Logged-in	App	Determine which user is using jobaid, when, and for how long
User	Logged-out	App	Determine which user is using jobaid, when, and for how long
User	Searched	Search	Determine which user searched for a job aid and what term they searched by
User	Searched	Tag	Determine which user searched for a job aid and what tag they searched by
User	Initialized	New Job Aid	Determine which user starts creating a job aid
User	Abandoned	Job Aid	Determine which user started creating a job aid and then canceled
User	Completed	Job Aid	Determine which user posts a job aid, what is the title, what is the subject, and how is it tagged.
User	Interacted	Job Aid	Determine which user made changes to a job aid, its title, description, and tag.
User	Interacted	Video	Determine which user added a video, what it's title is and to which job aid title, the job aid description and job aid tag.

Translate to xAPI – Other

Other components of xAPI statements:

- Object (*Activity*) – description, type, more info, interactions
- Result – score, duration, success
- Context – registration, instructor, revision, platform
- Extensions – activities, results, and context can have extensions
 - Used to extend data – for example, mastery score if someone “passed” an evaluation

Implement

Document the design

Situation	Purpose	Actor	Verb	Object	When Generated
	All Users				
User launches <u>jobaider</u>	Determine which user is using <u>jobaider</u> , when, and for how long	User	Logged-in	App	Press Login
User exits <u>jobaider</u>	Determine which user is using <u>jobaider</u> , when, and for how long	User	Logged-out	App	Press Log Out
User searches for a job aid using the search term "term"	Determine which user searched for a job aid and what term they searched by	User	Searched	Search	Press/click search button
User searches for a job aid using the tag "tag"	Determine which user searched for a job aid and what tag they searched by	User	Searched	Tag	Press/click a tag

Implement

Document the design

Situation	Purpose	Actor	Verb	Object	When Generated
Authoring					
User begins creating a job aid	Determine which user starts creating a job aid	User	Initialized	New Job Aid	Press/click Create New button
User cancels creating job aid named "titled" about "description"	Determine which user started creating a job aid and then canceled	User	Abandoned	Job Aid	Press/click back arrow (<) on Edit Aid screen
User posted a job aid named "title" about "description"	Determine which user posts a job aid, what is the title, what is the subject, and how is it tagged.	User	Completed	Job Aid	Press/click Post button
User edited a job aid named "title" about "description"	Determine which user made changes to a job aid, its title, description, and tag.	User	Interacted	Job Aid	Press/click Edit button
User added a video named "title" to job aid "title" about "description" and tagged "tag"	Determine which user added a video, what it's title is and to which job aid title, the job aid description and job aid tag.	User	Interacted	Video	Press/click Done after entering the video caption
User added a photo named "title" to job aid "title" about "description"	Determine which user added a photo, what it's title is and to which job aid title, the job aid description and job aid tag	User	Interacted	Photo	Press/click Done after entering the photo caption
User added an audio clip named "title" to job aid "title" about "description"	Determine which user added an audio clip, what it's title is and to which job aid title, the job aid description and job aid tag	User	Interacted	Audio	Press/click Done after entering the audio clip caption
User imported media from the library named "title" about "description" and added it to job aid "title" about "description"	Determine which user imported media, what its title is, and added it to which job aid title, the job aid description and job aid tag	User	Imported	Media	Press/click Done to import

Implement

Document the design

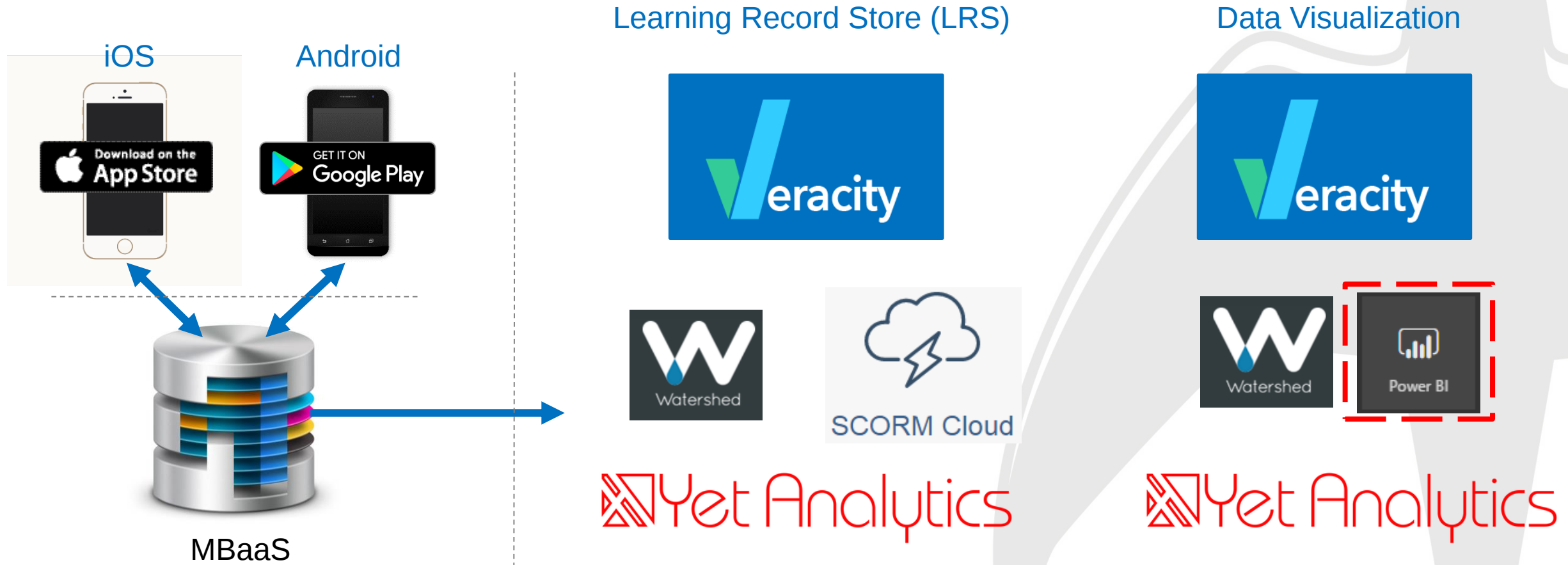
Situation	Purpose	Actor	Verb	Object	When Generated
Viewing					
User opened a job aid named "title" about "description"	Determine which user opened a job, what it is named and what is the subject matter.	User	Experienced	Job Aid	Press/click a job aid in the recent/search list
User looked at step X in "title" job aid about "description"	Determine which user viewed which step in a job aid, it's title, and description	User	Attempted	Step in Job Aid	Press/click job aid step
User looked at the video "title" in step X in the job aid "title" about "description"	Determine which user viewed a video, what its title is, and what step it is in which job aid.	User	Interacted	Video in Job Aid	Press/click job aid step with a video
User looked at the <u>photo</u> "title" in step X in the job aid "title" about "description"	Determine which user viewed a photo, what its title is, and what step it is in which job aid.	User	Interacted	Photo in Job Aid	Press/click job aid step with a photo
User listened to the audio clip "title" in step X in the job aid "title" about "description"	Determine which user listened to an audio clip, what its title is, and what step it is in which job aid.	User	Interacted	Audio in Job Aid	Press/click job aid step with an audio clip

Implement

Choose the technologies

- eLearning tools – limited xAPI support because assumes eLearning content
 - Captivate
 - Storyline
 - Elucidat
 - Obsidian Black
 - Lectora
- ADLNet xAPIWrapper - <http://ppg.fyi/2b>
 - javascript file can be included with web based xAPI clients to simplify the process of connecting and communicating to an LRS
- ADLNet SCORM-to-xAPI Wrapper - <http://ppg.fyi/2c>
 - using these wrappers WILL result in xAPI statements about your learners in an LRS
- xAPI Connector - <http://ppg.fyi/5thlogic>
- Custom code

Implement – Technology Stack



LRS vs LMS

Learning Management System (LMS)

For training programs and events

- Catalog
- Organize
- Launch
- Manage

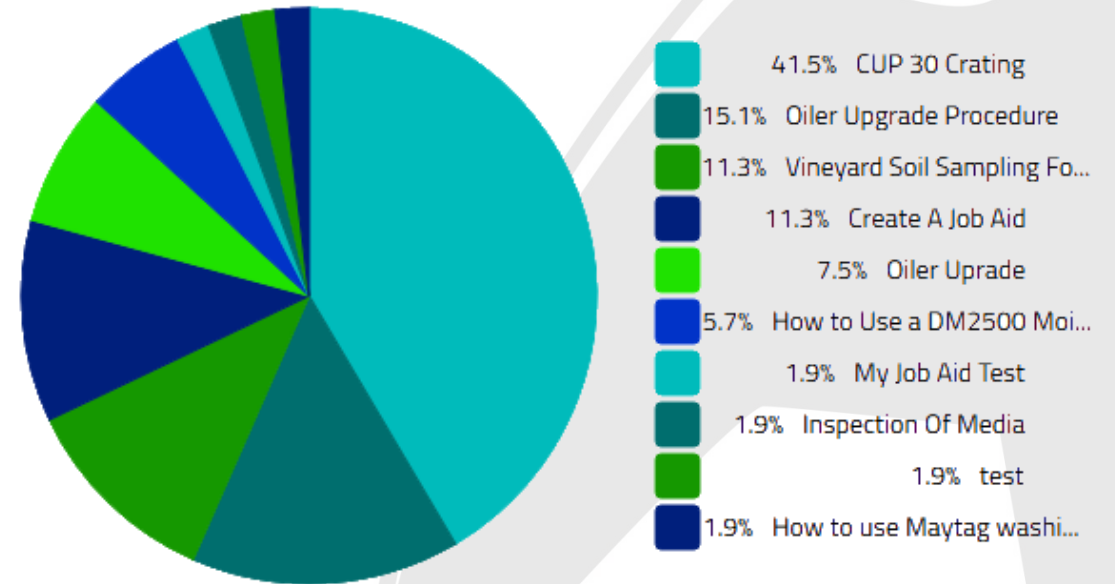
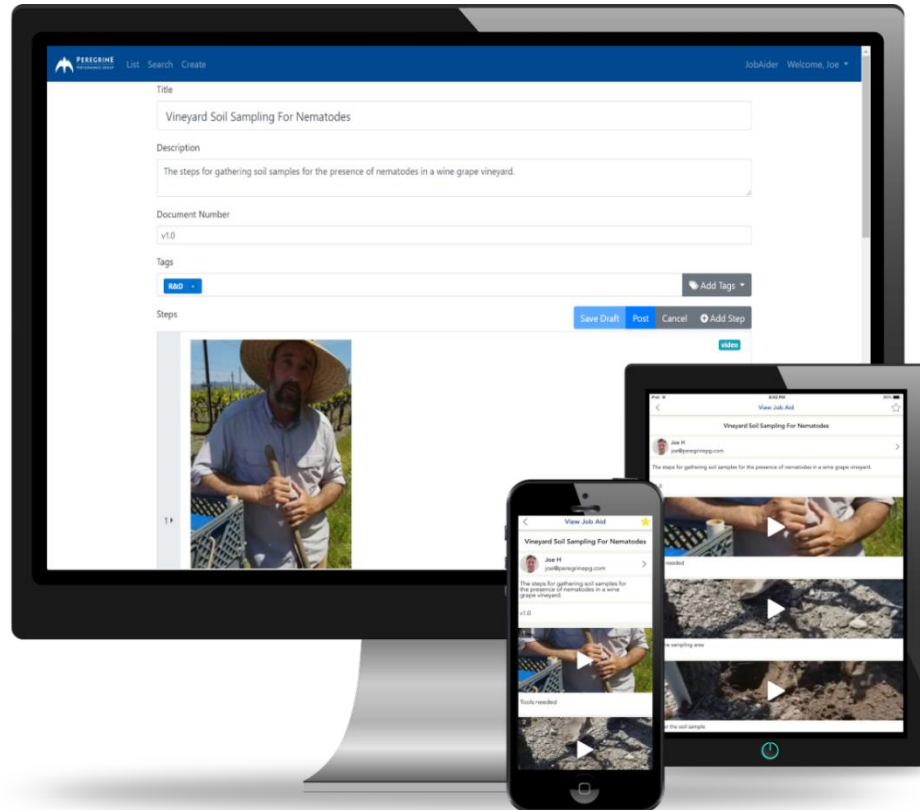
Learning Record Store (LRS)

Store xAPI statements (data)

Pass data to other

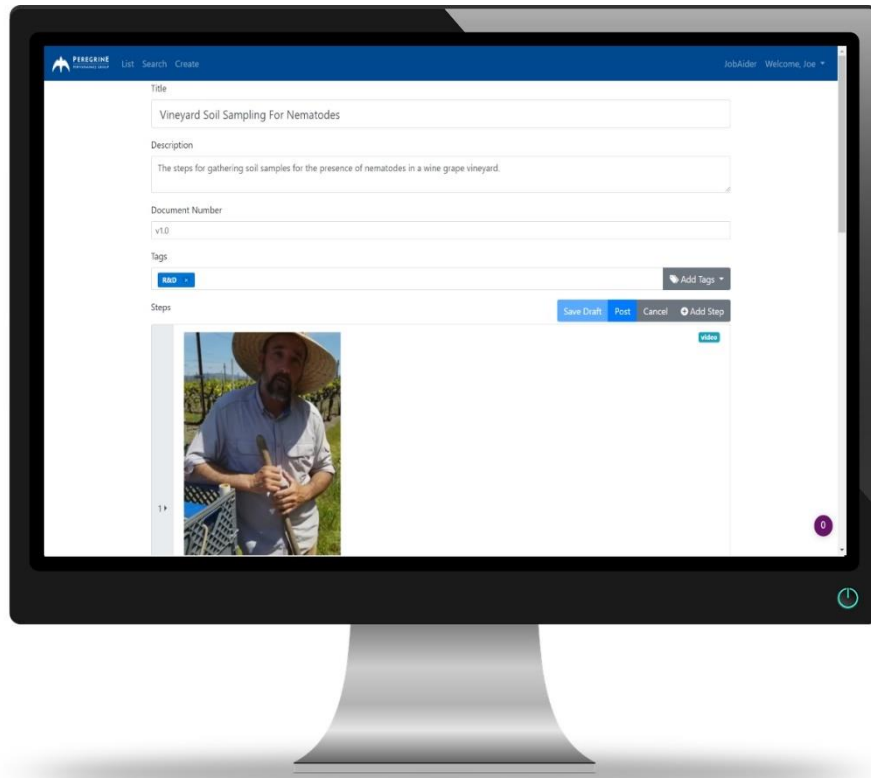
- LRSs
- LMSs
- Business Intelligence (BI)

Demonstration



JobAider

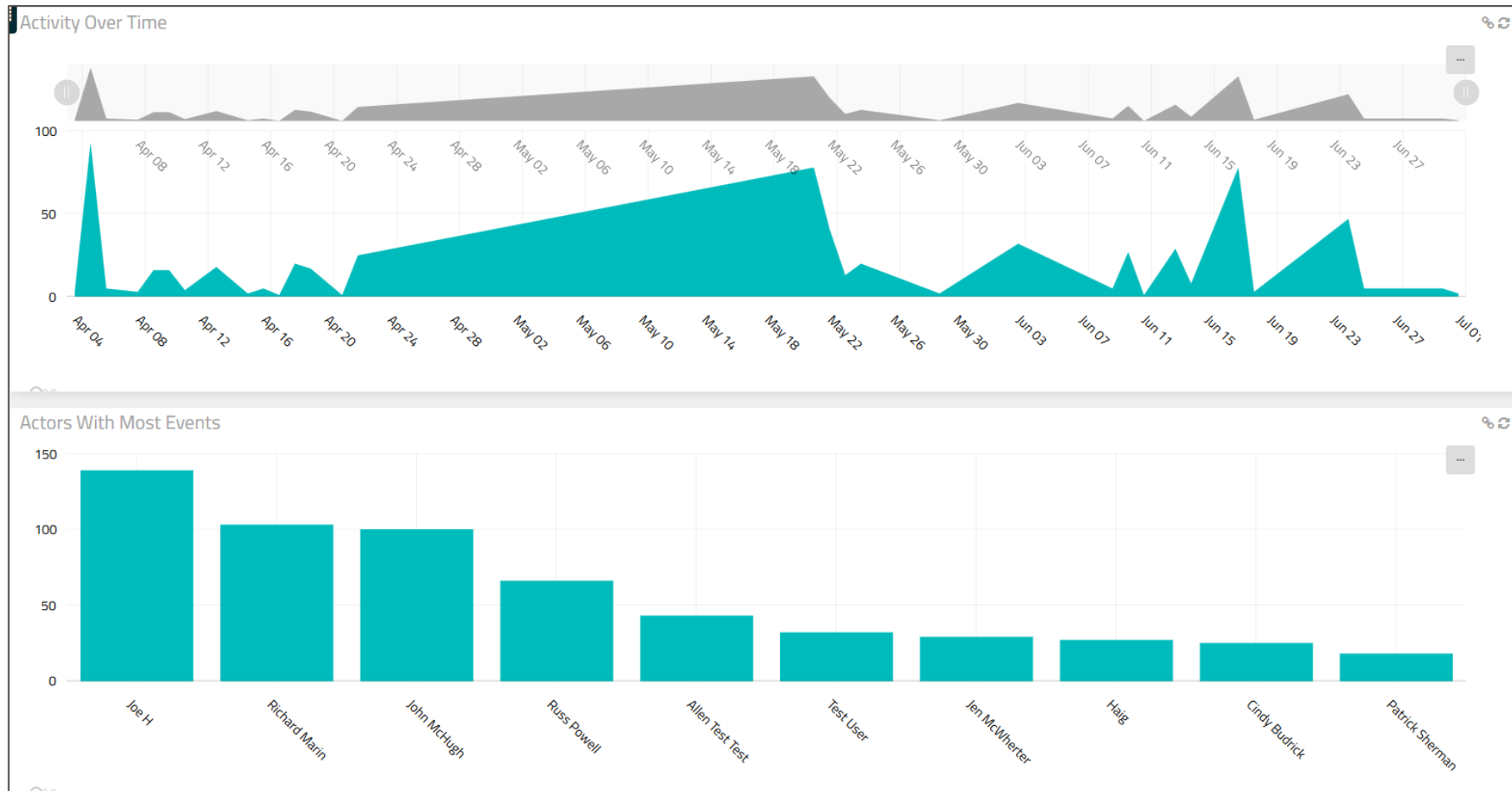
Step-by-step media-rich job aid development and publishing



Try for Free



xAPI LRS Data Visualization



Resources and References

- xAPI/LRS articles
 - Learning Solutions
 - *Designing Your xAPI Data Strategy: xAPI-Statement Framework* by [Art Werkenthin](http://ppg.fyi/27) - <http://ppg.fyi/27>
 - *Five Things a Web Developer Needs to Know About the xAPI* by [Andy Johnson](http://ppg.fyi/28), [Jason Haag](http://ppg.fyi/28), [Steve Foreman](http://ppg.fyi/28) - <http://ppg.fyi/28>
 - *Ten Steps to Plan & Communicate Your xAPI Design to a Web Developer* by [Craig Wiggins](http://ppg.fyi/29), [Peter Berking](http://ppg.fyi/29), [Steve Foreman](http://ppg.fyi/29) - <http://ppg.fyi/29>
 - eLearning Guild - The Experience API—Liberating Learning Design by [Craig Wiggins](http://ppg.fyi/2a), [Peter Berking](http://ppg.fyi/2a), [Steve Foreman](http://ppg.fyi/2a), [Jason Haag](http://ppg.fyi/2a) - <http://ppg.fyi/2a>
 - Top xAPI Authoring Tools to Get You Started by Brian Caudill - <http://ppg.fyi/2d>

Resources and References

- Groups joined
 - LinkedIn - Learning Record Store – Tin Can/X-API
 - LinkedIn - xAPI Camp
 - LinkedIn – xAPI (TinCan)
 - IEEE ICICLE - Industry Connections Industry Consortium on Learning Engineering

Resources and References

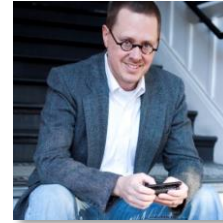
- ADL community of practice index
 - <http://www.adlnet.gov/adl-research/performance-tracking-analysis/experience-api/xapi-community-of-practice-cop/>
- CoP meeting first and third Tuesday of the month at
 - <https://groups.google.com/a/adlnet.gov/forum/#!forum/xapi-profile-cop>

Industry/Thought Leaders We Consulted

- Mike Hruska @ Problem Solution
- Jim Everidge @ Rapid Learning Deployment
- Adam Spindell @ edTotal LRS
- Francisco de Andrés @ ADITIO
- Nick Washburn @ 5th Logic

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