

2016 Trends: The Experience API & Learning Analytics



By Jerry Gschwind

Contents

Welcome to the Experience API	03
What Is the Experience API?	04
What Benefits Can We Expect?	06
Potential xAPI Pitfalls	10
The Impact on Learning & Development	11
How to Get Started	15
Conclusion	16

Introduction

The way we track and measure learning today may be unrecognizable to us soon, and 2016 could be the transformative year. A new and potentially disruptive learning technology specification, the Experience API (xAPI), is taking root and quickly gaining acceptance.

Welcome to the Experience API

In 2015 we saw a noticeable uptick in xAPI adoption by content authoring platforms, learning management systems and other product classes. Providers of learning record stores are proliferating and rapidly evolving their offerings to this new market.

This certainly does not feel like a passing fad. Yet...

- Most of the industry still has no idea what xAPI is or what its true impact will be
- Most learning leaders, even if they understand the specification to an extent, don't understand its potential benefits or how to get started

The fact is, xAPI represents more than a flexible way to track training courses. It's the result of decades of demand for more visibility into the millions of dollars and hours spent on creating and managing training and education. It's an answer to the call for accountability and results. xAPI, and the products that adopt it, could give the learning field a powerful approach for holding ourselves accountable and doing things better.

While it's always difficult to predict the future, we'll do our best in the following pages to explore what the advent of xAPI means for the learning field and learning organizations, and attempt to address the following five key questions:

- 1 What is xAPI?
- 2 What benefits can we expect?
- 3 What are the likely pitfalls?
- 4 How will xAPI affect the learning organization?
- 5 What can we do to get started?

What Is the Experience API?

The Experience API, or xAPI, is a technical specification for how systems communicate learning activity.

It was created by ADL, best known for creating the SCORM specification, and it's both complementary to SCORM, and in the long run, a potential SCORM replacement. It's also referred to as "Tin Can,"—Rustici Software's project development name for the specification, but that's gradually waning in favor for the community-supported open term xAPI.

Generally, xAPI is aimed at expanding our visibility into learner behavior beyond the limitations of the SCORM standard by allowing us to track much more detail than possible under SCORM.

When we say "technical specification" what we mean is a set of guidelines that defines very specifically how LMSs, authoring tools and other systems that create, deliver and manage learning should speak to each other. As a specification, it isn't something you buy or install by itself. You can only make use of it to the extent that you can either:

- Purchase tools that have already adopted the specification, and thus "conformed" to the specification, or
- Build your own tools and tracking mechanisms based on the specification.

As with any new specification, some caution is warranted. Without sufficient and sustained adoption, it could lose support, change or be abandoned altogether. However, with mainstream authoring tools and LMSs rapidly adding xAPI functionality in 2015, we see it as a safe bet for the time being. **At this stage, xAPI adoption by the learning technology industry seems more like a question of “when” and “how,” not “if.”**

How Does xAPI Work?

xAPI specifies a general three-part structure for communication, following a relatively simple subject-verb-object pattern. This pattern is known as a “statement.”

While the specification defines the syntax for statements, it leaves it up to us (the technology providers, instructional designers, etc.) to define what the statements say. Essentially, they can say anything! Here are some examples...

Subject	Verb	Object
Jane	Completed	NEO course
Ravi	Liked	Jane's discussion post about lead qualification
Boris	Attempted	Question six in the Safety 101 course
Maria	Achieved	Level 1 competency in the Statistics MOOC

This represents a major departure from SCORM. While SCORM limits tracking to just a handful of data points, such as completion status, assessment scores, bookmarking, etc., xAPI opens up virtually unlimited possibilities.

Learning Record Stores

Each statement that's tracked is sent to a special xAPI-conformant database called a Learning Record Store (LRS). The LRS then provides reports showing detailed insights into what learners are doing. Some LMSs, those that have adopted xAPI, have their own internal LRS for capturing xAPI statements. However, it is also possible to purchase and configure a stand-alone LRS.

Tracking

xAPI supports a wide array of tracking scenarios. Under SCORM, tracking is generally limited to learning that takes place inside a learning management system. However, xAPI can track learning, and even non-learning activity, happening outside of the LMS. This means that social, informal and mobile learning resources, all previously un-trackable, are now trackable through xAPI. It allows the transmission of statements from any type of online resource, so long as the above subject-verb-object pattern is followed.

The Three-Step xAPI Process

xAPI in its simplest form works through a three-step process:

- 1 Online courses, and other learning experiences, generate three-part statements that describe learning behavior as it's happening
- 2 Each statement is sent to an LRS
- 3 Detailed reports are produced from the LRS data

The result—greater accountability in the learning organization through superior learning analytics.

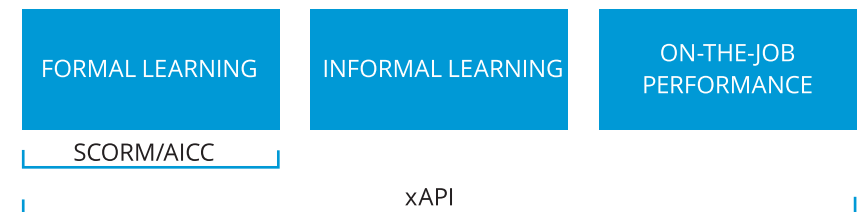
What Benefits Can We Expect?

The primary benefit we should expect to gain from xAPI is broader visibility of learning activity.

Under our current paradigm, SCORM focuses on tracking formal learning activities. It helps us understand who attended a class, who completed an eLearning course, what score a person achieved on an online assessment, etc.

SCORM's limited focus to date has actually served us well. It spells out relatively clear rules for a limited set of data; and courses produced with SCORM-conformant authoring tools can generally play and track as expected in SCORM-conformant LMSs.

xAPI, on the other hand, aims for the same interoperability while expanding our ability to track beyond formal learning, to informal learning and on-the-job performance. So while xAPI's prospect of providing greater analytical depth around formal learning is certainly exciting, it's this broader visibility that may yield the biggest business impact.



Tracking Informal Learning

What do we mean exactly by informal learning? A simple way to think of this is all of the learning that happens after a course is finished. It can include wide range of activities, including:

- Review of completed courses and online reference materials
- Discussion through social media and online forums
- Learner recommendations and resource ratings
- Utilization of performance support tools
- One-on-one mentoring and coaching
- Supplemental reading/research

Today, most informal learning goes unmeasured, despite the recognition that these activities are critical for learners to gain proficiency. Some have even argued that informal learning is more important than what happens during formal learning. By adding xAPI tracking statements to the resources that learners, their peers and their managers access during informal learning activities, we will begin to gain some learning analytics capabilities that we don't have today.

Here are a few examples and benefits:

- 1 **Utility of Informal Learning Resources**—By looking at the frequencies and trends of informal resource usage, we will start to get a sense of which are the most important for driving learner competency.
- 2 **Formal Training Improvement Opportunities**—By comparing formal learning analytics with informal analytics, we can more easily identify the areas in our formal curriculum that need improvement or more emphasis.
- 3 **Total Learner Effort**—From formal learning metrics, we have a good idea of how much time learners need to spend off the job to learn new skills. However, these metrics overlook informal learning time, which is sometimes more time-consuming than formal learning.

More informal learning data will give us a much better sense of how much time is actually being spent by learners after course completion, and can help us evaluate the tradeoff of spending more formal learning time to offset informal time, or vice versa. It can also help us build business cases for learning approaches that reduce total learner effort, which free up more time for work and increase time to proficiency.

Tracking OTJ Performance

Adding informal learning to the mix is a huge addition to our learning analytics toolbox. Now consider the impact of adding on-the-job (OTJ) performance measurements to the mix.

True, OTJ performance, in many cases, is already measured. However, xAPI will allow the processes that measure OTJ performance to tie back into LRSs, so this data can reside in the same place with formal and informal learning metrics.

OTJ metric sources vary widely depending on the job role. Here are a few common examples:

- HRIS data (performance reviews, recruiting, hiring, attrition, employee engagement)
- Performance surveys (customer, manager, peer, self-reported)
- Other enterprise systems data (ERP, CRM, supply chain)
- Other systems/processes that track additional OTJ results (individual and team)

With formal, informal and OTJ performance metrics all housed together, learning leaders should be able to more easily gain valuable insights into the business impact of learning.

For example, consider a sales force. LRS data that incorporates sales activity from a CRM could produce a report showing course completion rates, assessment score averages and detailed activity inside courses, sorted/grouped by sales activity metrics, such as number of calls/meetings and sales results (i.e. closed contracts).

A report like this would provide a sales training manager with a real-time view of true training effectiveness, and a way to quickly prescribe the right remedial interventions for low performers—all without having to cobble together various dis-integrated data sources.

Four Tactical Benefits of xAPI

In addition to broader visibility of learning activity, xAPI will provide a number of important tactical benefits:

- 1 More detailed tracking of formal learning.** With the ability to track anything that happens in a course, we will have the option to track what learners are doing on every page and in every interactive eLearning exercise. We will also be able to see detailed results from assessments and quizzes, allowing us to report on proficiency from within an eLearning course, rather than through a separate online assessment tool or LMS quiz function.
- 2 Tracking of mobile learning.** Because SCORM requires communication through a web browser and a persistent Internet connection, tracking of learning that takes place via mobile devices has been difficult. Which much of eLearning moving to mobile, xAPI provides a way to track without cumbersome workarounds. It allows tracking statements to be sent to a LRS from almost any system, and many supported programming languages, by simply following the xAPI format.

- 3 **Tracking of distributed learning assets.** Because xAPI allows content to communicate with a learning record store regardless of where it resides, it makes it easier to track learning that may take place across several providers. It helps reduce the need to obtain and import learning assets into a LMS for the purposes of tracking—those assets can remain where they are and still send tracking statements through xAPI.
- 4 **Personalization.** With all of the additional detail about learning activity, learning management systems will be in a better position to understand the tendencies and preferences of each individual learner. They will be able to make highly specific recommendations based on tracking results from either learning or OTJ activities, helping learners receive relevant, just-in-time support.

Potential xAPI Pitfalls

Although xAPI promises a number of key benefits, it's important to mind the potential pitfalls that lie ahead. How we collectively navigate these pitfalls may determine how quickly xAPI takes off, and how much value it provides in the short-term.

Interoperability

One of the great strengths of xAPI is its flexibility—but this flexibility can lead to interoperability issues. For example, while the xAPI specification encourages providers to make use of standard words, there's nothing stopping people from making up new words with their own definitions, or using different words for the same thing.

Let's say courses from two different providers end up sending the following statements to the same LRS...

Subject	Verb	Object
Richard	Read	Identifying High Potential Employees
Gina	Viewed	Negotiation Skills

How do we make sense of this through a report?

- > Do we consider “Read” and “Viewed” to be equivalent and aggregate them together?
- > What triggered “Read” for Richard and “Viewed” for Gina?
- > Do “Read” and “Viewed” even mean the same thing?

It will be important for technology providers to agree on standard definitions for xAPI terms in order to avoid confusion. Also, within learning organizations, there will need to be awareness of standard terms to ensure courses and other activities are developed and tracked consistently.

Data Overload

Upon implementing xAPI, many will be tempted to start tracking everything. However, the data can pile up quickly. For example, xAPI tracking for a single learner taking a simple 10 question quiz can easily generate 50-100 statements. Give that quiz to 1,000 people, and you suddenly have as many as 100,000 records to analyze.

Without the right reporting tools, and data analysis skills on-board, it can be tough to make sense of such a large dataset. There’s a risk that early xAPI implementations could collapse under their own weight without some careful planning of what will be tracked and why, and how the resulting data will be reported.

The Impact on Learning & Development

As much as xAPI promises to bring us new benefits and capabilities, it also promises change in how L&D operates. Overall, it’s safe to expect an increased emphasis on learning analytics, regardless of how the future plays out.

Expect this to come in two forms:

- 1 The time and energy you spend on analytics will increase naturally as more capability and data become available
- 2 There will be more demand for it from business partners outside of L&D

Now is a great time to begin preparing for this shift, and here’s a good roadmap for your journey...

Re-evaluate Your Measurement Strategy

Chances are, whatever you measure, however you measure it, it’s limited by SCORM and the current learning analytics paradigm. Now that this is opening up, you can think more broadly about what can be measured... but where should you start?

Financial Measurements

Internally, a good place to begin is to take a hard look at the measurements that currently drive the learning organization's financing. Then, try to distinguish between those that truly represent key performance indicators reflective of quality, efficiency, timeliness, etc., versus those that are rooted in "the possible"—what's easy to measure.

With the less significant measurements pinpointed, consider what it would take to retire them, and what you would need to replace them with measurements that better gauge the performance of your learning programs.

Broad Business Strategy

Next, consider your company's broader business strategy, and your most important program sponsors. What are the priorities? What needles are they trying to move? Can any be affected by behavior change? These could be wide ranging, but the idea is to prioritize down to a few key areas of focus. This strategic list could look something like this:

- 1 Improve the time to proficiency for new field engineers
- 2 Increase the number of integrated product/service opportunities closed by the sales force
- 3 Reduce customer service call volumes

With this list in hand, determine precisely how the business measures these items, and formulate hypotheses of how much impact behavior change could have on each. Then, considering the broader visibility afforded by xAPI, determine how you might measure each of those behavior changes across formal learning, informal learning and on-the-job performance.

Following an approach such as this can clarify the roadmap for a revised measurement strategy that takes advantage of xAPI to gain more insights into the impact of learning on the business, without falling into the pit of measuring everything.

Find a Dedicated Learning Analyst

Even with a revamped strategy consisting of prioritized measurements, you're still likely to have a lot more data at your fingertips than you're used to. More importantly, the stakes go up when you transition from measuring completion percentages to, let's say, measuring the impact of learning on contract volume.

Senior business leaders outside L&D will likely pay more attention, be more skeptical and look to poke holes in your assumptions. It will be important to have sound statistical fundamentals behind your analyses and present simple, visual conclusions from high-volume datasets.

If you already have a dedicated learning analyst on your team with a statistics background, then you're all set. You're also few and far between because most learning organizations don't yet have this skillset onboard. So, if you're like most, now is a great time to start identifying the talent you will need down the road.

You may have an individual already on your team with the right aptitude, perhaps a learning operations professional who is great with reporting. If you can start this person early on a learning plan that fills gaps in statistics, data analysis and data visualization, you may be able to fill the role without an outside hire or consultants.

It will be very challenging in the near term to identify an outside hire with both a background in learning and analytical skills, so education on one side or the other may be necessary. The key decision point will be to determine which skillset is easier to pick up, learning or analytics—a decision highly dependent on your industry, culture and measurement strategy.

Establish Governance

Have you ever faced the challenge of implementing a centralized LMS or portal to rein in a proliferation of online content distributed at the departmental level? Get ready for another wave of this!

As we've discussed, the flexibility of xAPI has the potential to breed no small measure of chaos. All a developer needs to start sending and receiving statements to your LRS is a single set of credentials. The statements can be sent from nearly anything and from nearly anywhere... even outside of your company.

Without proper controls, your LRS will quickly become a dumping ground for dozens of pet measurement projects that may or may not be strategic, but will certainly cloud your efforts to gain insights through the resulting clutter. Clamp down too hard, however, and departments may rebel and set up their own LRSs, hiding the very insights you're trying to gain.

To an extent, LRSs make it once again relatively simple to track/distribute learning without an LMS, which can be used as a route for some to work around the corporate standard, defeating the purpose of broad visibility to determine business impact.

A clarified approach to governance over learning data can eliminate this scenario. While some decentralized experimentation is inevitable, there are a number of early steps that L&D should consider:

- **Get there first.** Be the expert on xAPI so the business looks to you for advice and support. They won't waste time figuring out xAPI on their own, and setting up a separate system, if you're ready to support their needs.
- **Set up clear criteria and guidelines** for access, tracking and reporting with the LRS. Be especially careful in handling outside access, and partner with IT to address info security concerns early.
- **Be flexible.** Include the consideration that some departments may want their own LRS for specific purposes. LRS to LRS communication is possible through the specification, so look at this as an opportunity to support individual departmental needs, without losing track of data.

Drive Change

With the broader visibility afforded by xAPI, and ultimately a clearer view of the business impact of learning, the learning organization will be in a better position to lead the charge of driving business change.

Armed with better insights that pinpoint the impact of behavior change and improved skills, learning leaders will be able to join what is increasingly a data-driven conversation about strategic initiatives. And with an operational and robust learning analytics solution, L&D will also be in a good position to notice OTJ performance anomaly patterns and recommend solutions.

As an example, consider compliance training in a manufacturing environment. Without xAPI, it's often viewed as an exercise of "checking the box", and reporting generally focuses on completing courses and passing tests. However, through xAPI, quality management systems on the factory floor could be set up to report quality deviations to an LRS—which in turn could be compared to utilization rates of procedures and successful completion of training activities that relate to the deviations.

In this case, a manufacturing training manager could see how much or how little his/her training efforts are having on manufacturing quality, and could propose adjustments to either the training or business processes. This particular manager is now much better prepared to contribute to a larger strategic discussion about quality management with peers outside of L&D.

With or without xAPI, learning executives now live in a world of big data, and they'll be required to bring data to the table to discuss issues facing the wider business. If we're successful in having metrics-based discussions about learning that clearly tie to OTJ performance, we'll not only contribute more to our businesses, we will also change the perceived value of learning and the people that support it.

How to Get Started

With the advent of xAPI, learning analytics is poised to make a major step forward, and promises to improve our capabilities, change the way we operate, open up new contribution opportunities and confront us with new challenges. While the possibilities are exciting, it's important to keep a perspective that we're very early in this cycle.

If you're interested in getting started, some caution is warranted. xAPI is still a work in progress, and support for the specification, along with the specification itself, is likely to change dramatically over the next 18 months. Identifying a high-potential, limited pilot opportunity, and building from there, is the best course for most organizations. This will help you avoid rework and throw-away effort in the event of unexpected change.

Consider an approach along these lines to get your xAPI initiative off the ground:

- 1 **Identify a champion in your organization.** Without a committed innovator, willing to fight through some of xAPI's current messiness, you won't get very far. You'll need someone with technical aptitude and a passion for measurement. Ideally, they're a person who is already excited about xAPI and researching it on their own. However, they could just as easily be a person that, once educated, instantly "gets it."

- 2 Select a limited pilot opportunity.** Pick one item from your measurement strategy that has the clearest definition and path to impact. Generally, you're looking for a set of measurements with the following characteristics:
- They relate to a single strategic business priority (e.g. improved customer sat scores)
 - They span the broad vision that xAPI offers across formal, informal and OTJ performance
 - There's meaningful existing baseline data, or it can be easily collected
 - They help you test clear business impact hypotheses (e.g. average wait times are less for service reps that successfully complete Effective Call Management and refer to the reference materials provided)
- 3 Choose the right tools and partners.** This is tricky because the vendor landscape and pricing is constantly shifting, but it's nevertheless important to identify an optimal set of tools and partners to get started. At minimum, you'll likely need either an LRS or LMS that supports xAPI, an xAPI-conformant authoring tool and some resources with technical expertise to help with embedded statement calls in your informal and on-the-job systems.

- 4 Develop a pilot.** Develop or convert xAPI-conformant resources and deploy these to a limited audience for a limited time. This will give you an opportunity to experience the end-to-end process for a single set of measurements, from design to reporting/analysis. Make sure to get feedback from stakeholders inside and outside L&D to fully evaluate.
- 5 Keep an eye on the trends.** As you evaluate your pilot results, keep an eye on the xAPI-related trends in our industry, and look for changing approaches to support new tools/technologies, and new outside services/partners to assist. This will help you gauge how quickly to ramp up other pilots or a full implementation.

Conclusion

All indications are that 2016 will represent a major evolution in our approach to learning analytics, and your calibrated efforts to explore the xAPI specification and its capabilities should serve your organization well in preparing for what lies ahead.

Corporate Headquarters

Expertus Inc
3945 Freedom Circle
Santa Clara, CA 95054 USA

Sales

sales@expertus.com

Information

info@expertus.com

Toll Free USA

877-827-8160

International

+1 408-703-2508

Website

expertus.com



Jerry Gschwind

Learning Strategy Consultant, Expertus

With over 20 years of learning strategy experience, Jerry has helped pioneer new approaches to learning with Fortune 500 companies across a wide variety of industries, including General Electric, Citigroup, Apple, Expedia and Kraft. His current focus is the planning and implementation of complex, custom learning programs.

Interested in discussing specific ways your learning organization can adopt xAPI? Contact Jerry at jerryg@expertus.com or visit www.expertus.com.