Tracking Learning Experiences Using the Experience API

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Agenda

1. Short History of Technology-Based Training (TBT)
2. Shortcomings of present LMS-centric & content-centric e-learning
3. Many different ways of learning (informal learning, social media, collaboration, smartphones, etc), so how to capture learning?
4. What led to the development of the xAPI?
5. What is the xAPI?
6. Why is there the need to know the xAPI?
7. Early adopters of the xAPI
8. Demonstration walkthrough of LMS to LRS communication
9. Video demonstration of an LRS System
10. xAPI prototypes
11. Summary
## 1. Short History of Technology-Based Training (TBT)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Blended Learning - Web, Video, Audio, Simulations, ILT, &amp; more ... 2002 ...</td>
<td>Mobile Learning</td>
</tr>
</tbody>
</table>

### Key Events:
- **19603 – 1970s**: Mainframe-Based CBT
- **1980s – 1990s**: Satellite-based Distance Learning
- **1997**: Formation of e-Learning consortia like IMS Global and the US DoD’s ADL.
- **1998 – now**: 1st Generation WBT, Virtual Classroom, E-learning
- **2002**: Mobile Learning
## 2. Shortcomings of the present LMS-centric & content-centric e-learning - 1

<table>
<thead>
<tr>
<th>LMS-centric &amp; content-centric e-learning</th>
<th>Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCQs -&gt; single-answer assessments.</td>
<td>Don’t reflect real-world situations</td>
</tr>
<tr>
<td>Learning</td>
<td>Very linear</td>
</tr>
<tr>
<td>Content materials on the LMS</td>
<td>Predominantly text-based</td>
</tr>
<tr>
<td>Teacher = knowledge dispenser</td>
<td>Doesn’t encourage self-directed &amp; independent learning</td>
</tr>
<tr>
<td>Contents from other devices, e.g. smartphones, tablets</td>
<td>Can’t consolidate with those on the LMS</td>
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1. Shortcomings of the present LMS-centric & content-centric e-learning

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<td>LMS must connect to the Internet all the time in order for learning interactions to take place.</td>
<td>Smartphones, tablets are not always connected to the Internet.</td>
</tr>
<tr>
<td>Difficult to ascertain how much learning the participant has done if he or she uses multiple devices to access information.</td>
<td>Learning assessment becomes unreliable.</td>
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Main Problem with LMS Model

Very little online learning happens on the LMS! LMS is used only as a repository of learning materials. Nowadays, many people learn many things using at least some of the following applications. But LMS cannot handle such learning.
3. Many different ways of learning (informal learning, social media, collaboration, smartphones, etc), so how to capture learning?

Reference: http://www.pcmag.com/article2/0,2817,2376056,00.asp
What about mobile apps and augmented reality?...
I want to track data in a simulation...
Learning is social. How do I integrate all of this social media?
I want to train multiple users in a virtual world...
4. What led to the development of the xAPI?

- SCORM was first released in 2000 but it is now 15 years old!
- People communicating and collaborating with mobile devices.
- Mobile devices – expensive to maintain 24/7 Internet connectivity.
- People are also learning differently:
  - Texting
  - Desktop – access LMS to do quizzes
  - Use iPAD to view webinars
  - Android phone to check interactive study guides
- Rustici contracted to work on a new proposal for the new generation of e-learning specification.
  - Extensive consultation with the e-learning community of practitioners, Rustici developed the Tin Can API in 2013.
  - The ADL renamed it xAPI, for Experience API.
5. What is the xAPI?

• Stands for Experience Application Programming Interface (shortened to xAPI).
• It is also referred to as the Tin Can API.
• It is a set of open specifications to track learning experiences.
• Version 1.0.0 of this specification was released in April 2013.
• It is now at Version 1.0.1 as at 2 October 2013.
• It is still evolving.
• It is commonly said to be the next generation after SCORM.
6. Why is there the need to know the xAPI?

i. Taking e-learning outside of the web browser

ii. Handle e-learning in native mobile applications

iii. More control over learning content

iv. Better security

v. Platform transition; e.g. start e-learning on a mobile device, finish it on a computer

vi. Able to track

   i. games and simulations

   ii. real-world performance

   iii. team-based e-learning

   iv. learning plans and goals
Learning happens anywhere
Learning Experiences that Matter

Learning is happening everywhere. People learn in many places, doing many things.

Collect the experiences that matter. This API records activities and delivers data that is:
- Quantifiable
- Sharable
- Trackable
How Tin Can API works

LRS – Learning Record Store
Tin Can Statements - 2

Tin Can in Education:

1. “Jenny **uploaded** ‘Guide to Bb Collaborate’ to **YouTube**”.
2. “Jenny **watched** ‘Statistics for Beginners’ on **Khan Academy**”.
3. “Jenny **subscribed** to ‘ECR podcast’ on iTunesU”.
4. “Jenny **posted** ‘English Competency Assessment’ on Jenny’s Blog”.
5. “Jenny **attended** 2014 Faculty Learning Day”. Registrant's pass records attendance.
6. “Jenny **uploaded** a photo to the field work database”
7. “Jenny **borrowed** Capstone Project Guidelines from the Tay Eng Soon Library”
8. “Jenny **completed** Topic One in Gerontology App”
7. Early Adopters of the xAPI - 1

Check out the latest at: http://tincanapi.com/adopters/
116 companies and organizations have adopted the xAPI (March 2015).
List includes companies dealing with LMSs, authoring tools, etc.
8. Demonstration walkthrough of LMS to LRS communication

Diagram:
- Learning Locker
- Statements queried
- Tracked
- E-learning course (Golf example)
- Launched
- LMS
- Statements displayed

LRS

Watershed

Moodle
8. Demonstration walkthrough of LMS to LRS communication

- Restrict access

- Activity completion

  Completion tracking

  Show activity as complete when conditions are met

  Require view

  Student must view this activity to complete it

  Track completion by verb

  Verb: http://adlnet.gov/expapi/verbs/passed

  Expect completed on

  29 April 2015

  Enable

Save and return to course  Save and display  Cancel
8. Demonstration walkthrough of LMS to LRS communication
8. Demonstration walkthrough of LMS to LRS communication

The player with the best score on previous hole tees off:
- First
- Last
- With a putter

Which formula is used to calculate the 'course handicap'?
- Course Handicap = Handicap index + number of holes * number of lost balls in last round
- Course Handicap = Number of years experience / annual equipment spending
- **Course Handicap = Handicap index * Slope Rating / 113**

Golfer A has a course handicap of 6. Golfer B has a course handicap of 10. Golfer A shoots an 81. Golfer B shoots an 84. Golfer B wins the match be how many strokes?

1

A 'scratch golfer' has a handicap of

0

Golfer A has a course handicap of 3. Golfer B has a course handicap of 28. On the 6th handicap hole, how many strokes will Golfer A have to give Golfer B in match play?


To make friends on the golf course, you should play really slowly.
- True
- False

Knickers indicate a refined sense of style.
- True
- False
8. Demonstration walkthrough of LMS to LRS communication - 4
8. Demonstration walkthrough of LMS to LRS communication
- 4
9. Video demonstration of an LRS (Learning Record Store) system

TinCan API Support and Recording Statements from Articulate package

URL:

10. xAPI Prototypes

• From the ADL:
  • https://lrs.adlnet.gov/prototypes

• From Rustici:
  • http://tincanapi.com/download-prototypes

• From Learning Locker:
  • http://learninglocker.net/

• From IxHive:
  • https://github.com/Brightcookie/IxHive

• From Tinman:
  • https://github.com/claresco/Tinman
11. Summary

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- It is now at Version 1.0.1 as at 2 October 2013.
- It is still evolving.
- It is commonly said to be the next generation after SCORM.
- Used to track learning in many different situations and using many different devices.
End of Presentation

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