xAPI and Privacy – How the „Personal Data Locker“ can solve this issue

Gerhard Schwed
Erwin Bratengeyer
A short introduction:

Danube University Krems, AUSTRIA

Famous Austrians:
Wolfgang Amadeus Mozart (composer)
Arnold Schwarzenegger (actor, „Terminator“, former Gov. of California)

Danube University:
~ 8,000 students
founded 1995
Introduction & Problem

(e-)Learning takes place in many different places and situations. People learn ...
- with different systems (LMS, mobile apps, different websites, social media, ...)
- formal and informal
- analog and digital
- in different situations and locations (workplace, home, library, ...)

With digital media logdata are produced and stored in different systems and in different formats. 😞

In non digital situations nothing is logged. 😞
Challenge

How to collect, document and prove mandatory learning activities in a complex world?

Possible solutions:
- Writing a learning diary ... non reliable, lot of work
- ePortfolio (e.g. Mahara) .... sometimes complicated, linked to spec. Software
- xAPI

xAPI is developed to to describe and record all kind of learning activities in a structured way on a central place.
xAPI = "virtually" the evolution of SCORM
- platform independent “language” to describe
- formal and informal learning activities
- from different sources
- stored in a LRS (Learning Record Store)

=> enables nearly dynamic tracking of activities from any platform or software system—from traditional Learning Management Systems (LMSs) to mobile devices, simulations, wearables, physical beacons, and more.
xAPI statement from different (analog) sources

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Erwin Bratengeyer, Timisoara, May 19, 2016

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Plugin for Google Chrome: [https://chrome.google.com/webstore/detail/pdl/ajnahfidcbfdnpflgagajffjkgffhgon](https://chrome.google.com/webstore/detail/pdl/ajnahfidcbfdnpflgagajffjkgffhgon)
xAPI Vocabulary

http://xapi.vocab.pub/datasets/adl/

Source: http://xapi.vocab.pub/datasets/adl/
**xAPI + LRS**

Data about learning activities from different sources (LMS, Browser, App, RFID, ...) are recorded in a central LRS (Learning Record Store) as xAPI statements.

At the LRS data can ...  
- be analyzed  
- trigger further activities via back channel  
- be sent to 3rd party apps
Learning Record Store (LRS)
xAPI + LRS examples
# Challenges: Big Data and Privacy

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<th>Transparency vs. Privacy</th>
<th>Data privacy policies to be developed Personal Data Locker</th>
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<tr>
<td>Big Data – Big Analysis = Big Mistake Correlation ≠ Causation</td>
<td>Data Analytics skills required</td>
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<td>Automatisation &amp; Dehumanisation</td>
<td>Ethical issues to be discussed</td>
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<td>New types of data bases</td>
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Protection of personal data

In January 2012, the European Commission proposed a comprehensive reform of data protection rules in the EU.

On 4 May 2016, the official texts of the Regulation and the Directive have been published in the EU Official Journal in all the official languages. While the Regulation will enter into force on 24 May 2016, it shall apply from 25 May 2018. The Directive enters into force on 5 May 2016 and EU Member States have to transpose it into their national law by 6 May 2018.

The objective of this new set of rules is to give citizens back control over their personal data, and to simplify the regulatory environment for business. The data protection reform is a key enabler of the Digital Single Market which the Commission has prioritised. The reform will allow European citizens and businesses to fully benefit from the digital economy.

Whenever you open a bank account, join a social networking website or book a flight online, you hand over vital personal information such as your name, address, and credit card number.

What happens to this data? Could it fall into the wrong hands? What rights do you have regarding your personal information?

Everyone has the right to the protection of personal data.

http://ec.europa.eu/justice/data-protection/
Solution: „Personal Data Locker“ (PDL)

by German company „Sicher im Inter.net“
**xAPI + LRS + PDL**

Data is first going to the PDL.

Each user can control which data to record and send to the LRS.

=> User is not just producer of data but always owner with full control!
xAPI + PDL ... example

Select activities to be stored on LRS.
xAPI + PDL ... example
... work in progress

Project not yet finished.

Open tasks:
- combine LRS and PDL
- Back channel from LRS to MOODLE
- Connect more devices and systems (e.g. library)
- Analysis of the results!
Links

**LRS:** [https://learninglocker.net/](https://learninglocker.net/)

**PDL:** [https://personal-data-locker.org/](https://personal-data-locker.org/)

**xAPI:** [https://xapi-insi.de/](https://xapi-insi.de/)

**Video:** [https://youtu.be/MKARMZW9GkE](https://youtu.be/MKARMZW9GkE)

**Moodle-Plugin:** [https://moodle.org/plugins/logstore_xapi](https://moodle.org/plugins/logstore_xapi)

**Chrome-Plugin:** [https://chrome.google.com/webstore/detail/pdl/ajnahfidcbfdnplgagajkffgfhgon](https://chrome.google.com/webstore/detail/pdl/ajnahfidcbfdnplgagajkffgfhgon)

**ADL verb list:** [http://xapi.vocab.pub/datasets/adl/](http://xapi.vocab.pub/datasets/adl/)


**CMI5 and xAPI:** [https://github.com/AICC/CMI-5_Spec_Current](https://github.com/AICC/CMI-5_Spec_Current)
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... Thanks for your attention!

Gerhard Schwed
Erwin Bratengeyer