Districts’ Push for “Interoperability”: Managing the Sea Of Ed-Tech Content
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Managing the Sea of Ed-Tech Content

Expert Presenters:

Kecia Ray, executive director, Center for Digital Education, former executive director of learning technology, Metro Nashville school district

Serena Sacks, chief information officer, Fulton County, Ga., school district

Related Article:
Big Districts Pressure Publishers on Digital-Content Delivery
An on-demand archive of this webinar will be available at www.edweek.org/go/webinar in less than 24 hrs.
What is interoperability?

• Interoperability describes the extent to which systems and devices can exchange data, and interpret that shared data. For two systems to be interoperable, they must be able to exchange data and subsequently present that data such that it can be understood by a user.¹
Definitions
SCORM

While the AICC specification may have stagnated, it provided the groundwork for the next significant spec: SCORM (Sharable Content Object Reference Model). Championed by the Advanced Distributed Learning (ADL) group, AICC formed a close relationship to work through this next evolution. Per the SCORM Wikipedia entry,

“SCORM is a collection of standards and specifications for web-based e-learning. It defines communications between client side content and a host system (called “the run-time environment”), which is commonly supported by a learning management system. SCORM also defines how content may be packaged into a transferable ZIP file…”

The AICC basis for SCORM can be seen deeper in the specification with the preface of ‘cmi.’ for most all the spec’s functions and variables.
xAPI

Otherwise known by its working name, TinCan, the Experience API (xAPI) specification is also managed by the ADL and is slowly gathering steam, hitting version 1.0 in April, 2013. The specification is young but promising. While it frees the content from the tie-in to a direct web application launch and a restrictive set of tracking parameters…it is very much a different specification from SCORM and carries with it new concerns. Per the xAPI Wikipedia page,

The Experience API “is an e-learning software specification that allows learning content and learning systems to speak to each other in a manner that records and tracks all types of learning experiences. Learning experiences are recorded in a Learning Record Store (LRS). LRSs can exist within traditional Learning Management Systems (LMSs) or on their own.”

It is interesting to watch xAPI mature and be integrated with LMS products, or new stand-alone LRS products, as well as how useful it is in increasing the assessment of user’s learning paths, preferences, and growth – especially in considerations of how easy it will be to track almost any online activity. Have privacy concerns about xAPI’s ability to be implemented everywhere? Unsure how to report on the ‘actor, verb, object’ data when it’s not strictly defined? Stay tuned…
What is Common Cartridge?

Common Cartridge is a specification that describes format for creating and sharing primarily educational digital content. The specification is developed by IMS Global Learning Consortium and describes in detail the packaging format and infrastructure needed to support format for presenting it to the end-user. (See FAQ for more info especially What is Common Cartridge?)

Why Common Cartridge?

Common Cartridge solves two problems. The first is to provide a standard way to represent digital course materials for use in on-line learning systems so that such content can be developed in one format and used across a wide variety of learning systems (often referred to as course management systems, learning management systems, virtual learning environments, or instructional management systems). The second is to enable new publishing models for on-line course materials and digital books that are modular, web-distributed, interactive, and customizable. (cited from CC FAQ - http://www.imsglobal.org/cc/ccfaqs.html#2) We feel that it is important to support all efforts in on-line educational community and try to standardize content exchange format(s). That way we support openness of Moodle and increase possibility of interoperability with other LMS systems.
What are districts doing?

• Houston: selected learning management system (LMS) and is requiring all vendors to utilize common cartridge within LMS

• Nashville: requires all vendors to work with a third party solution for the API/LTI integration

12/16/2015
What are organizations doing?
What are organizations doing?
“The IMS Global Learning Consortium (IMS GLC) is a global, nonprofit, member organization that strives to enable the growth and impact of learning technology in the education and corporate sectors worldwide.” — IMS profile statement
Footnotes/Resources

1. [www.himss.org](http://www.himss.org) library/interoperability-standards
The Case for Interoperability

K-12 Digital Learning Standards

Serena E. Sacks
Chief Information Officer
December 17, 2015
Education Week Webinar
Today we will focus on:

• Setting the context at Fulton County Schools
• The case for interoperability
• Selecting IMS Global interoperability standard
• Lessons learned
Serena E. Sacks
Chief Information Officer, Fulton County Schools

- Five years K-12 Education
  - Florida Virtual School, CIO
  - Fulton County Schools, CIO

- 25 years of transformational leadership in Fortune 500 companies
  - Wyndham Vacation Ownership
  - Harcourt
  - Walt Disney World
  - IBM

- Certifications
  - Balanced Scorecard
  - Governance of Enterprise IT (ISACA/COBIT - CGEIT)
  - Project Management Professional PMI
  - Six Sigma/LEAN Green Belt

Serena@fultonschools.org
Mission: To educate every student to be a responsible, productive citizen.
Vision: For all students to learn to their full potential.

Public school district, charter system
- Fourth largest district in GA
  - 96,000+ students
  - 14,000 employees
  - 101 schools

Physically bisected by Atlanta Public Schools
- 70+ miles between northern and southern most points
- Comprised of 13 cities

Diverse student population
- A majority minority district
- 50% free/reduced lunch
- 52 different languages
- 10% special ed./needs

Personalized learning is a path to our district 2017 goals:
- 90% graduation rate
- 85% college readiness
- 100% career readiness

District Layout
### What is personalized learning?

<table>
<thead>
<tr>
<th>Personalized learning is:</th>
<th>Personalized learning is not:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leveraging technology to place more students and teachers in successful learning environments</td>
<td>Replacing teachers with computers</td>
</tr>
<tr>
<td>Creating conditions to make teachers more efficient and effective</td>
<td>Having all students work on computers all day long</td>
</tr>
<tr>
<td>Providing students with opportunities to receive the support they need when they need it during the school day</td>
<td>A mandated system that will take away from school and teacher autonomy</td>
</tr>
</tbody>
</table>

**Our best one to one device will always be great teachers!**

[Personalized Learning Video](#)
## Personalized learning framework

### Vision & Leadership

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Learning</th>
<th>Tools &amp; Support</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>What Will Your Students Learn?</td>
<td>How Will Your Students Learn?</td>
<td>What Resources Do You Need?</td>
<td>How Will You Run It?</td>
</tr>
<tr>
<td>Options &amp; Resources</td>
<td>Student-Focused Culture</td>
<td>Infrastructure &amp; Technology</td>
<td>Governance, Structure &amp; Roles</td>
</tr>
<tr>
<td>Assessments</td>
<td>Professional Learning</td>
<td>Facilities &amp; Materials</td>
<td>Implementation &amp; Sustainability</td>
</tr>
</tbody>
</table>

### Communication

- Standards & Curriculum
- Pedagogy & Instructional Strategies
- Cost & Resource Management
- Planning & Change Management

### Infrastructure & Technology

- Infrastructure & Technology

### Monitoring & Continuous Improvement
Student devices are a critical step for transforming learning to meet our strategic goals.

**Low tech classroom**
- Technology not available / consistently used

**High tech classroom**
- Classroom has technology including interactive projectors
- All students have access to devices
- Teachers and students access digital content and software

**Blended classroom**
- Teachers differentiate instruction allows more efficiently and effectively using technology
- Supports Continuous Achievement framework

**Competency based classroom**
- Students assessed on mastery of standards
- Students accelerate or decelerate based on progress
- Student choice in demonstrating mastery of standards
- Truth in grading through Proficiency Scales

2014 - Traditional 2019 - Personalized
Options and resources

- Digital citizenship curriculum
- Teacher digital resource pages
- Fulton Virtual School
- Instructional Management System (IMS)
- Learning Management System (LMS)
- Digital marketplace
  - eBooks
  - Audio files
  - Videos
  - Education apps
  - Instructional software
  - Productivity tools
  - Virtual tutors
What would happen if we did not have Data Network standards?

- Chaos
- Not Scalable
- No Protection for Intellectual Property
IMS Mission Statement

The mission of the IMS Global Learning Consortium is to advance technology that can affordably scale and improve educational participation and attainment.
Why select IMS Global standards?

What are the interoperability standards for distributed learning?
- LTI Standard
- Common Cartridge®
- Thin Common Cartridge®
- QTI
- Caliper
- Learning Information System (LIS)
- OneRoster™

What are the benefits of adoption?
- Enables a wide variety of digital resources to be integrated regardless of enterprise system configuration (hosted content, learning tools, downloadable content)
- Enables seamless plug & play integration of content, applications, and platforms to create better user experiences
- Provides an agile open architecture and extensive ecosystem to enable experimentation, flexibility and efficiency in a time of rapid change
- Results in effective collaboration between districts and ed-tech to enable better learning through better technology
Personalized learning using IMS Standards

Personalized Learning using IMS Global Standards

Analytic Event Log Protocol

IMS Caliper 1.0

Analytics Data Store

3rd Party Tool

External tool access with SSO authentication and learning meta-data transfer

Analytics Engine

IMS LTI 2.0

SAFARI Montage LTI Object

Learning style along with other analytical criteria tailors lesson per user

SAFARI Montage Object

Recommended Continued Learning Criteria #1

Recommended Continued Learning Criteria #2

Recommended Continued Learning Criteria #3

User

SAFARI Montage Lesson

Lesson and/or object transfer from external source

IMS CC 1.4

Accessible Portable Item Protocol Playback per Individual Needs

IMS APIP 1.0

Response Analytics

External Lesson

Also known as QTI, this standard allows for individual needs to be taken into account when performing a quiz (Get it?). For example: a non English speaking user may have the ability to show a translation on screen.
The challenge and the opportunity

IMS districts are collaborating to evolve to an integrated digital curriculum

<table>
<thead>
<tr>
<th>From standalone tools:</th>
<th>To integrated tools:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confusing choices</td>
<td>Curated choices</td>
</tr>
<tr>
<td>Multi-step access</td>
<td>Seamless 1-click access</td>
</tr>
<tr>
<td>Expensive rostering</td>
<td>Automated rostering</td>
</tr>
<tr>
<td>Low data availability</td>
<td>Outcomes &amp; activity data (usage/learning)</td>
</tr>
<tr>
<td>Separate assessment</td>
<td>Ongoing, linked assessment</td>
</tr>
<tr>
<td>Limited progress info</td>
<td>Rich progress info (comparative, artifacts, CBE)</td>
</tr>
</tbody>
</table>
Learning platforms that accept IMS
Lessons Learned

• District scalability requires learning objects that are "plug and play"

• Collaboration with internal partners is critical, this includes not just IT infrastructure but also project management, IT support, and contracting/procurement

• Vendor adoption of interoperability standards has been slow

• Include standards conformance or adoption into RFPs (Request for Proposal) and contracts

• Interpretation of the standards between the district and the vendors is critical.
Enterprise Mobility Suite (EMS)

David M. Pearlman
Director Enterprise Mobility
US Education
What is the value of Azure’s mobility solution in education?

- **Hybrid Identity**: Give students and educators access to cloud and on-premises assets, for a consistent UX and more efficient IT management.
- **Mobile Devices and Application Management**: Provide easy access to the apps teachers and students need, making it simple to manage multiple devices across many platforms.
- **Access and Information Protection**: Register devices and allow users to access assignments and content from one secure location, and maintain the privacy of their data.
- **Threat Protection**: Give your IT the ability to stay one step ahead of any potential security threats to your system.
Enterprise Mobility Suite

**Identity & Access Management**
- Microsoft Azure Active Directory Premium
  - Easily manage identities across on-premises and cloud. Single sign-on & self-service for any application

**Mobile Device & App Management**
- Microsoft Intune
  - Manage and protect corporate apps and data on almost any device with MDM & MAM

**Information Protection**
- Microsoft Azure Rights Management Premium
  - Encryption, identity, and authorization to secure corporate files and email across phones, tablets, and PCs

**Behavior based threat analytics**
- Advanced Threat Analytics
  - Identify suspicious activities and advanced threats in near real time, with simple, actionable reporting
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Required Reading from *Education Week*:

**Spotlight on Building the Digital District**
In order to build the digital district, ed-tech leaders must ensure that back-end services run smoothly and securely. This Spotlight illustrates how districts can maintain reliability in technology programs, like multidistrict online collaborations, effective data-security plans, cloud computing, and virtual-learning environments.