xCaliper?

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IMS Caliper Enabled Services

- Caliper Sensor Endpoint(s)
- Compliant Data Management Services

IMS Caliper Learning Analytics Ecosystem

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Lack of Cross-Application Architecture = Silos

- Learning Management System
- Classroom Capture System
- E-Portfolio System
- E-Textbooks & Diverse Digital Content
- Clicker Classroom Feedback System
- Summative Assessment System
HEd Institutional Leadership Community | K-12 Institutional Leadership Community
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Technical Advisory Board (TAB) and TAB Executive Committee | Market-specific and Region-specific Executive Boards
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.
Building the EdTech Innovation Eco-System

Ed Tech Interoperability Standards

Technical Foundation for Distributed Innovation

Large-Scale Adoption Projects

Adoption of Innovation at Scale Toward Strategic Goals

Recognizing Impact on Access, Affordability, Quality of Education

Annual Learning Impact Conference & LIA Awards

Purposeful Technology Innovation Applied to Improve Education
A New Architecture for Learning

by Rob Abel, Malcolm Brown, and John J. Suess

Published on Monday, October 7, 2013  0 Comments

If we are to support students and faculty as connected learners and instructors, we must rethink our approach to academic technology architecture. At the foundation and core of that architecture is information technology, in its role as the strategic enabler of connected learning.

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The Next Generation Digital Learning Environment

A Report on Research

Malcolm Brown, EDUCAUSE Learning Initiative
Joanne Dehoney, EDUCAUSE
Nancy Millichap, Next Generation Learning Challenges

ELI Paper
April 2015

https://net.educause.edu/ir/library/pdf/eli3035.pdf

Abstract
In partnership with the Bill & Melinda Gates Foundation, EDUCAUSE explored the gaps between current learning management tools and a digital learning environment that could meet the changing needs of higher
“Analytics” is one of the hottest buzzwords in education. For ed-tech companies, it is also a selling point. By using vendors’ suites and solutions, colleges will gain access to data about why some students succeed and where and when others stumble -- or so the pitch goes.

But there’s a catch, said Linda Feng, senior product manager for analytics and SIS integration at Instructure. “The whole premise is that all that data has to be in their world,” she said.

“All these systems have their own languages that are written for their own needs,” said John Whitmer, director for platform analytics and research at Blackboard. “In order to talk a common language, we have to agree to a common vocabulary.”
Caliper, by the IMS GLC, will be the standard for how learning data is collected.

“Caliper opens up access to meaningful data”

“Caliper is built around the IMS Learning Sensor API to define basic events and standardize metrics across different learning environments, and also uses IMS LTI standards to integrate standardized measurement with tools interoperability. Put together, Caliper is less about analytics, and more about the data standardization that will eventually drive learning analytics efforts.”
Evolving 'Infrastructure' — Next: Focus on Exostructure!

- **Suprastructure (overarching support)**
  - TCP/IP, SMTP/MIME, DNS
  - Exoskeleton, GAPE, Caliper, QTI, EduPerson, MLO

- **Exostructure (outside support)**
- **Endostructure (inside support)**
  - Skeleton, ERP, LMS

- **Infrastructure (underpinning support)**
  - Road, Sewer, Cabling, Electricity

- **Organizational Standards Enable Flexibility**

- **Generic Standards**
- **Specific (Industry) Standards**
Caliper: Click Stream Data for Learning Analytics

Scenario

Three years into a learning analytics initiative, officials at State University have seen positive results in course grades and student retention. The implementation of various Caliper-compliant applications, including an LMS replacement a year ago, promises even deeper insight into the connections between learning activities and outcomes. Caliper is a framework for learning data that enables the capture of highly granular data consistently across learning applications. Steve Holton, the university’s CIO, has been working with the provost to develop tools and services that capitalize on Caliper data. For example, through Caliper instrumentation, a quiz testing tool for math gathers data such as when students take quizzes, how long they spend on each problem, what sequence they follow, and which resources they consult. Crunching data about these events helps designers associate learning tactics with outcomes, which informs the structure of future quizzes and exams. A similar project, an online protein-modeling application, produces Caliper data that can indicate the effectiveness of learning activities based on how students interact with them.

Since the implementation of the new LMS, the IT staff have deployed several Caliper-compliant online learning tools, and data from these apps is loaded into the LMS. The university encourages faculty and instructional designers to adopt only Caliper-compliant tools. Holton points to the need for students and faculty to continually monitor data and share best practices about how to use it within the system.

What is it?

Caliper is a standard that enables the collection, storage, and transport of data about learning. As a learning analytics framework, Caliper provides a common-gauge rail for disparate applications to use and share data from student interactions with learning software and administrative systems. Increasingly, a student’s learning environment extends beyond the campus LMS to other platforms and applications—often integrated using the Learning Tools Interoperability (LTI) specification—that generate data in a range of formats, often housed in disparate databases. Caliper is designed to overcome this disconnectedness by enabling data capture from student online interactions, devising a universal vocabulary to describe these events, and presenting collated data for use in learning analytics, research, and other learning-related endeavors. In much the same way that HTML codified an open standard for transfer and display of information, Caliper offers an open standard for learning-event data.

How does it work?

Caliper provides an information model that describes concepts, entities, and relationships. It is extensible, built on

https://library.educause.edu/resources/2016/3/7-things-you-should-know-about-caliper
Net-Net

Enabling standard that delivers

Viable Consortial Standard

Community commitment

Perceived market opportunity

Buyer awareness & support

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