Next-Generation Digital Learning Environments: Closer Than You Think!

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1. Summary
EDUCAUSE, with support of the Bill and Melinda Gates Foundation, ran focus groups in 2014 looking at digital learning environments and what was missing that would allow them to better support teaching and learning. What came out of these discussions has been named next-generation digital learning environments (NGDLE). This abstract and the accompanying session will focus on what the essential requirements are for NGDLE and give an update on one consortium of universities, named Unizin, that is working to implement and deploy an advanced digital learning environment.

2. Introduction
The web-based learning management system (LMS) was first introduced approximately twenty years ago. The EDUCAUSE Center for Applied Research, in a study on faculty and student usage of technology, found that 85 percent of faculty and 83 percent of student use the LMS regularly¹. As a mainstream educational technology service, few technology products have so quickly reached this level of adoption. Despite this high adoption rate, just 41% of faculty that were surveyed report using the LMS to promote interaction outside the classroom.²

In the report “The Next Generation Digital Learning Environment,”³ it was noted that the LMS has been highly successful in enabling the administration of learning but less so at enabling learning itself. In addition, the design of most LMS products has been course- and instructor-centric and not designed for students to create customizable pathways.

In 2013, Jack Suess, Malcolm Brown, and Rob Abel wrote an EDUCAUSE Review article titled “A New Architecture for Learning.”⁴ They proposed that today’s learner is in a position to integrate a wide array of personal connections, resources, and collaborations - both local to and external to the institution - in order to construct the pathways needed to meet personal educational goals. They noted that many refer to this type of learning as connected learning. Similarly, instructors have an unprecedented number of options for how they design and execute a course.

The authors note that as the LMS became more essential to course administration, IT organizations develop a production mindset to the operation of the LMS and don’t encourage adoption of innovative new products without months of testing. As a result, there is little incentive to explore new applications and services, let alone encourage personalization. The result is that this production-mentality often serves as an impediment to academic innovation by faculty.

3. Next-Generation Digital Learning Environment (NGDLE)
The NGDLE report⁵ describes an environment that doesn’t replace the LMS, but augments it, to focus on five dimensions of core functionality: (1) interoperability and integration; (2) personalization; (3) analytics, advising, and learning assessment; (4) collaboration; and (5) accessibility and universal design. The report notes that some dimensions are further along and better defined; however, all five must be built out to meet the vision.
The report encourages our higher education community to envision the NGDLE as something akin to a Lego Set. They note two benefits from this approach, if we standardize how the pieces fit together, then we can build this over time and leverage many parts available today. Second, this approach readily allows for personalization.

4. Interoperability and Integration

Interoperability is the lynchpin of the NGDLE. As noted in the report, much of the proposed plans is built from standards developed by IMS. IMS was founded in 1995, as a project within the National Learning Infrastructure Initiative of EDUCOM (now EDUCAUSE). In 1999, IMS became an independent organization with a mission to advance technology that can affordably scale and improve education participation and attainment. IMS now has 350 members (55 from higher education) that participate in activities around standards creation, innovative use of technology, and the large-scale deployment to achieve learning impact.

IMS has four major efforts that align closely with the NGDLE, these include: accessibility - the IMS standard Access for All; analytics - the IMS Caliper Analytics standard; interoperability - the IMS LTI2 standard; and collaboration and personalization - the IMS Community App Sharing Architecture (CASA) project.

5. Unizin Project

Unizin is a consortium of twenty-two higher-education institutions, educating over 700,000 students, that is facilitating the transition toward collaborative digital education with the goal to improve learner success. Founded in 2014, their mission is to improve the learning experience by providing an environment built on collaboration, data, standards, and scale.

Unizin leverages standards and has focused heavily on creating NGDLE Lego blocks in the areas of collaboration; analytics, advising, and learning assessment; and interoperability and integration. Examples of these projects include content tools for eText and course design, analytics tool, and support tools for faculty and staff.

6. Summary

Through work such as the NGDLE, higher education is creating a shared vision for the creation of connected-learning environments that focus on personalized learning. These environments are critical for using technology to affordably scale and improve education. While there has been much work in collaborative research between Europe and the United States, this has been less so when it comes to educational tools. We hope that through our session we will begin a dialogue that can help both regions work closely together towards our common goals of improving education.

7. References

5. Brown, Dehoney, Millichap, The Next Generation Digital Learning Environment
7. https://www.imsglobal.org/activity/caliperram
8. https://www.imsglobal.org/lti-v2-introduction
Bruce Maas is the Vice Provost for Information Technology and CIO at the University of Wisconsin-Madison, a position he has held since August of 2011. He has served the University of Wisconsin System in a diversity of roles over a career of more than 38 years.

Bruce has served as the Director and a faculty member of the EDUCAUSE Leadership Institute, and Chair of the EDUCAUSE Midwest Regional Conference. He is serving a 4 year term on the EDUCAUSE Board of Directors from 2012 to 2016, and is currently the Board Chair after serving as Treasurer for 2 years. He is also a member of the Internet2 Program and Priorities Committee, External Relations PAG, Co-Chair of the 2016 Internet2 Global Summit Planning Committee, and is the co-PI for two NSF infrastructure grants. In addition, Bruce is a member of the Board of Directors of Unizin and is serving a three year term on the Board of Directors of IMS Global.

Rob Abel is an education industry leader focused on the role of technology in enabling transformation to new educational models. In February 2006 he was appointed Chief Executive Officer of the IMS Global Learning Consortium, a non-profit organization that provides advocacy for advancement of technology to improve access, affordability and quality of education worldwide. IMS is also a leading technical standards setting body in the global education and learning segment. IMS has grown over 4x and created the annual Learning Impact program under Rob's leadership.

Rob also previously founded the Alliance for Higher Education Competitiveness to research best practices that enable transformation. He was previously Senior Vice President of Client Services and Chief Marketing Officer at Collegis (later Sungard Higher Education and Ellucian). Prior to his work at Collegis Rob was Director of Online Learning products and services at Oracle. Rob spent 20 years as a leader in the silicon valley high tech segment. He has degrees from Fielding Graduate University, Stanford University, USC, and Carnegie-Mellon University.

Mr. John "Jack" Suess is Vice President of Information Technology and Chief Information Officer (CIO) at the University of Maryland, Baltimore County (UMBC). As Vice President, he provides university leadership for information technology at UMBC and serves on the executive leadership team of the university responsible for providing information technology services in support of teaching and scholarship, research, computing, and administrative support.

Since 2000, Mr. Suess has been very active nationally in the areas of cybersecurity, identity management, analytics, and cloud computing and has served in a number of national information technology leadership activities with EDUCAUSE, Internet2, IMSglobal, and InCommon.

Dr. John O'Brien serves as the president and CEO of EDUCAUSE, a nonprofit association whose mission is to advance higher education through the use of information technology. The current membership comprises over 1,800 institutions and 300 corporations.

Throughout his 25-year career in higher education, John has deeply engaged with the IT and educational technology sectors. Most recently, John served as senior vice chancellor for academic and student affairs at Minnesota State Colleges and Universities (MnSCU), the fifth largest higher education system in the country. In this position, he was dedicated to ensuring student success and implemented strategic changes to help MnSCU adapt to the changing needs of higher education.