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 regularly[1]. 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 report[5] 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[6]; analytics – the IMS Caliper Analytics standard[7]; interoperability – the IMS LTI2 standard[8]; and collaboration and personalization – the IMS Community App Sharing Architecture (CASA) project[9].

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

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[4] Rob Abel, Malcolm Brown, and John Suess, "A New Architecture for Learning," *EDUCAUSE Review* 48, no. 5 (September/October 2013), http://er.educause.edu/articles/2013/10/a-new-architecture-for-learning.

[5] Brown, Dehoney, Millichap, The Next Generation Digital Learning Environment

[6] https://www.imsglobal.org/activity/accessibility

[7] https://www.imsglobal.org/activity/caliperram

[8] https://www.imsglobal.org/lti-v2-introduction

[9] https://www.imsglobal.org/activity/community-app-sharing-architecture-casa

Bruce Maas is the Vice Provost for Information Technology and CIO at the University of Wisconsin-M
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Bruce has served as the Director and a faculty member of the EDUCAUSE Leadership Institute, and
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Rob Abel is an education industry leader focused on the role of technology in enabling transformation
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Rob also previously founded the Alliance for Higher Education Competitiveness to research best pra
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Since 2000, Mr. Suess has been very active nationally in the areas of cybersecurity, identity man
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In this position, he was dedicated to ensuring student success and implemented strategic changes to
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