Foundations: Past and Future

To educators and students, technology is not an end in itself but rather a set of additional tools to help enable a more productive educational experience. The dramatic growth of online and hybrid courses and degree programs reflects the enabling power of technology to help serve broader student populations. However, to meet U.S. national goals for college completion and the needs of future students, colleges and universities will need new policies and new approaches. A growing number of higher education leaders believe that technology has a critical role to play in providing the foundations for improving educational outcomes and student success.

The Interoperable Foundation

Nearly ten years ago, I became CEO of the IMS Global Learning Consortium (IMS). I believed that the education sector needed to develop a working open-source foundation that would accelerate the progress in applying technology to educational innovation. Although open source was beginning to achieve substantial gains in education around that time, I also believed that interoperability and open standards held the potential to maximize the return on investment across a wide variety of commercial and noncommercial sources. But I knew that a new leadership culture that prioritized the application of technology to enhance the educational mission would be required.

I’m pleased to report that IMS has grown from 50 to 350 member organizations. This amazing growth is a testament to the leadership and cooperation of the IMS member organizations (leading institutions, suppliers, government organizations, and foundations worldwide) on breakthrough interoperability such as Learning Tools Interoperability (LTI). Clearly, interoperability that is led and owned by the education sector not only is possible but is taking hold. As of today, more than 375 products have achieved IMS conformance certification, resulting in significant savings for both suppliers and institutions. And these savings are being redirected toward more innovative products and approaches. Indeed, IMS standards are helping to define the key architectural innovations needed to support evolving educational models.

The NGDLE Foundation

Two years ago, Jack Suess, Malcolm Brown, and I wrote an EDUCAUSE Review article titled “A New Architecture for Learning.” We posited that to support students and faculty as connected learners and instructors, higher education must rethink its approach to academic technology architecture to scale connected learning. At the foundation of that architecture is information technology. As the number of educational apps, tools, and platforms explodes, institutional information technology needs to find more efficient ways to integrate them into the enterprise, thereby providing a seamless, connected experience for faculty and students. We noted that bringing about the change we were seeking would require historic levels of cooperation and collaboration across U.S. higher education institutions, national organizations, the commercial sector, and educators.

Today I am glad to report that I see tremendous progress—thanks to support from the Bill & Melinda Gates Foundation, the leaders of national organizations, commercial suppliers, and many campus instructional technologists and leaders. One showcase of this progress is the report by Malcolm Brown, Joanne Dehoney, and Nancy Millichap: The Next Generation Digital Learning Environment. Through extensive interviews with more than seventy thought leaders across higher education, the authors examined the current learning management system (LMS) and extended the technical description earlier described in “A New Architecture for Learning,” noting: “Over time, the LMS needs to be supplemented (and perhaps later replaced) by a new digital architecture and components for learning that contribute to and enable the transitions that higher education is currently experiencing.”

They identified several dimensions to be addressed as we move toward the Next Generation Digital Learning Environment (NGDLE):

- Interoperability and Integration
- Personalization
- Analytics, Advising, and Learning Assessment
- Collaboration
- Accessibility and Universal Design

I agree. I recently attended a day-long event focused on the next steps needed to advance the NGDLE. I left the meeting believing that four areas will be key to making the NGDLE a reality. The good news is that they are all in the works.

First is the opportunity associated with accessibility and, more generally, personalization. Those in our meeting discussed the fact that many of us, though not officially designated as “special needs,” often used accessibility features on our phones to improve the experience. The group examined the IMS standard Access for All (https://www.imsglobal.org/activity/accessibility), which allows individuals to create global
preferences that will work across all tools and content solutions. Although ubiquitous adoption of Access for All will take time, it defines a comprehensive set of personal attributes that could greatly advance accessibility and the personalization of learning environments for each user.

Second are the opportunities in analytics. The IMS Caliper Analytics standard (https://www.imsglobal.org/activity/caliperram) has been released, and we have begun to see leading organizations achieve conformance with the standard. Caliper will allow institutions to get interoperable data on how students use content and tools provided in a course. With data, we can help students succeed, and we can improve the tools we create.

Third, related to the dimension of interoperability and integration, the release and adoption of LTI2 (https://www.imsglobal.org/lti-v2-introduction) is enabling much richer integration to occur between the LMS and tools or content. With LTI2, institutions can support the sharing of an accessibility profile, data about where to place the tool, and rich outcomes, thereby improving the user experience. Perhaps just as important, LTI2 will allow “integration at the speed of now”—one-click integration with automated negotiation of which services are supported.

Fourth, in terms of collaboration and personalization, the IMS Community App Sharing Architecture (CASA) project (https://www.imsglobal.org/activity/community-app-sharing-architecture-casa) provides an open standard for publishing and sharing catalogs of applications (mobile, web, embeddable learning tools) with application metadata about features and functions. CASA will enable the construction of affinity-focused peer environments where each peer (e.g., a university) can apply local policies for both publishing and receiving app catalogs. We expect most suppliers and vendors to have a CASA, as will many educational institutions. The goal for CASA is that as cloud-based applications use LTI2 and Caliper Analytics, we can give faculty the control to add new learning tools and content in their courses.

Over the last few years, I have been heartened to see a number of colleges and universities step up and engage their campuses in furthering the NGDLE:

- Twenty-two institutions have joined Unizin (http://www.unizin.org) and are working to improve the digital learning experience by providing an environment built on collaboration, data, standards, and scale.
- Twenty-four institutions have received iPASS grants from EDUCAUSE to build better advising systems.
- Twenty-two institutions have joined the Personal Learning Consortium at the Association of Public and Land-grant Universities (http://www.aplu.org/projects-and-initiatives/personalized-learning-consortium/).

- Hundreds of corporate, K–12, and college/university members of IMS are enabling the interoperable foundation for all of the above.

Ten years ago when I joined IMS, the topics discussed above were considered esoteric. That is not the case today. The idea that ed tech should be “plug & play” via an interoperable foundation is rapidly becoming mainstream. If your institution has not been engaged directly, I invite you to participate in one or more of these efforts. Another opportunity is to join the EDUCAUSE Learning Initiative (ELI) and actively follow the developments taking place. At a minimum, the one thing that each higher education institution can do is require new and existing suppliers to achieve conformance certification with the standards noted above (all certified products are listed here: https://www.imsglobal.org/cc/statuschart.cfm). By citing standards certifications as requirements, you are helping to protect your own investments, enabling a more innovative IT environment, and advancing the community toward achieving the NGDLE.

Notes

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