

ROB ABEL - OPEN SOURCE AND OPEN STANDARDS*

Ken Udas

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Abstract

Rob Abel's contribution to the OSS and OER in Education Series. In this post, he relays a few thoughts on the relationship between open source software that supports teaching and learning and open standards for data and application interoperability in the same space.

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NOTE: Author - Rob Abel, "Open Source and Open Standards". Originally submitted September 19th, 2007 to the OSS and OER in Education Series, Terra Incognita blog (Penn State World Campus), edited by Ken Udas.

1.1

About 18 months ago, in February of 2006 I was appointed the CEO of the IMS Global Learning Consortium¹. IMS is a non-profit member consortium focused on developing open standards for interoperability in the domain of learning and education. My sense was that open source software was an important trend in this domain, especially in the higher education segment. I had some fairly recent exposure to higher ed open source in the U.S. having just completed a research study on current usage and prospective usage. In discussions with the IMS Board of Directors, which included at the time several providers of non-open source solutions (and still does, by the way) there was confirmation on the importance of including open source initiatives in the open standards discussion. Since then IMS has included open source and open technology program tracks in our annual conference and added a couple of open source leaders, Moodle² (course management platform) and INFORMS³ (student and administrative system platform), in addition to some existing participation from the Sakai community⁴, to our active participants.

I've also been involved in several invited presentations and panel discussions with some other very smart folks on the topic of open source and open technologies in both the higher ed and K-12 school segments. Through an accumulated experience of two years looking at open source and open standards and how they can, will, or might impact the learning technology segment, I have, at least initially, concluded a few things

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[†]<http://creativecommons.org/licenses/by/3.0/>

¹<http://www.imsglobal.org/>

²<http://moodle.org/>

³<http://www.informs.com/edu.html>

⁴<http://sakaiproject.org/portal>

about open source, open standards and the relationship between them. Since we have a long way to go, I'm offering these as postulates that need to be proven. Here goes:

Postulate number one: Open source reference implementations are extremely critical in achieving adoption of open standards for software interoperability.

I think the greatest proof point of this is probably Apache⁵ – the availability of an authoritative reference model while organizations are attempting to adopt new interoperability standards is invaluable in accelerating industry participation. In learning standards, our conundrum is conformance.

One of my favorite sayings of the month is, “learning technology interoperability standards – great for researchers or consultants, bad for interoperability.” The point being that pretty much all the specifications developed over the last ten years of progress are well, not very specific. Ethernet they are not. This, above all, in my opinion and in the opinion of many IMS members is the single largest reason that much very good work has been thwarted in terms of its potential for adoption.

As a result, IMS is doing a bunch of things under the name of “application profiling” to narrow down spec parameters for various communities – either by region or segment. We are also providing value to our members in bringing them together in various ways to support testing. But, while this is helpful, is there anything more efficient than the ability to build to an authoritative reference design?

Postulate number two: Standards organizations are pretty much the only way to get a level playing field when it comes to new open source applications for learning – however, that won't happen unless the open source projects/communities are active participants.

Some very successful open source initiatives leveraged existing investment in operating systems, web servers, etc. making the decision of what interfaces to implement pretty straightforward. Unfortunately, in end-user applications, and especially in education and learning, that prior investment doesn't usually exist.

One of my very repeatable conversations with new open source project X begins with: “OK, Rob, just tell us what standards you have and then we can adopt them.” To which I reply, “well, if you want them to exist you need to help create them.” Let's take course management systems as an example. Who defines the interoperability interface points between a course management system and other complementary components in what we like to call the “learning enterprise?” There is no obvious answer to that question.

If an open source initiative for learning wants to be on the cutting edge of defining that “enterprise architecture,” well, then it needs to be involved in the standards creation and evolution. Another very repeatable conversation with open source initiative X goes like this, “well, Rob, we are implementing open source interfaces and therefore we are creating open standards – therefore, we don't need to participate in standards activities.” To which my reply is, “best of luck to you!”

The reality is that unless you are Google, or of a similar size and market share, you will have an extremely difficult time getting critical mass around your homegrown standard. And, typically a small open source project (they all start out small usually) has the exact problem of competing against larger competitors, like Google, who are much more likely to pull off that strategy than they are.

Postulate number three: Whether open source or proprietary, it's all about the boundaries of customization.

That may seem like an odd statement but it became apparent to me when discussing open source and student systems with an audience at a presentation of mine at the JA-SIG conference in 2006. What I mean is that at the end of the day, both open source and proprietary solutions are challenged to come up with the right designs in the education segment with respect to what is customizable and what is not.

Those that want open source solutions include in the key factors control and customization. However, if control and customization comes at the price of “forking⁶” in the open source world, there is a big problem. You then lose the key benefit of the shared investment in upgrades, evolution, etc. that is so important. So, customization must be done judiciously and most importantly, designed into the core platform for forward and backward compatibility. This is exactly what seems to be the key challenge of many proprietary solutions in the education space. That is, is there enough customization afforded in the right ways so that the institution can differentiate itself, innovate, and so forth?

⁵<http://www.apache.org/>

⁶[http://en.wikipedia.org/wiki/Fork_\(software_development\)](http://en.wikipedia.org/wiki/Fork_(software_development))

Postulate number four: Open source can be strategic to the goals of educational organizations but I currently only know of one case in which it is.

Wow! Maybe I finally wrote something controversial. Maybe this qualifies as a blog now! It is very sad to me, but also an opportunity for those that wish to lead, that “the technologies of learning” are not strategic in our education institutions. What I mean by “strategic” is that the executive leadership understands that investment in technology to support learning is a key priority – not just to further the educational mission of the institution but also to further society’s progress in the use of technology for learning.

I kind of wrote a whole article on this topic⁷ earlier this year for Educause Review. For the purposes of this discussion, I want to point out that the same seems to be true of open source learning applications. The only exception I know of (there may be others I have not yet been exposed to) is the Open University in the U.K.⁸ and their evolving adoption of Moodle.

Open U. sees participation in an open source community as a way to leverage investment and innovation. As such, Open U. has stepped up to a key leadership role in that community and sees this as an ongoing core investment. Again, the difference between this strategy and others I am aware of is that it is not an IT department strategy. It is an institutional strategy that goes hand in hand with the philosophy and strategy of Open U.

I realize that this sort of thing is not easy to pull off in higher education institutions, especially the elite institutions with many diverse and largely independent schools, divisions, departments, etc. And, as I already mentioned, this may be more of an issue with technologies for learning in general versus open source versions of that technology. It will be interesting to see if other institutions can follow suit and which ones will emerge as the leaders in learning technology, open source, or both. The relationship to standards should be obvious – institutional buy-in to learning technology standards will help move the market to the great benefits of standards adoption.

OK, so that’s about all I think I might have learned. I’m very interested in your reflections on the topic. We have been very active in transforming IMS Global Learning Consortium⁹ into a venue where these sort of bigger picture ideas are discussed, in order to help inform the global learning segment. You may find our annual report¹⁰ on trends in learning, technology, and standards of interest or might be interested in joining our online community¹¹.

2 Comments

2.1.1 Ken Udas - September 21st, 2007 at 4:22 am

Hello, First, I would like to offer a big thank you to Rob for his thought provoking post. I think that there are lot’s of practical hooks here and I would like to take advantage of them. I concur with Rob’s third postulate

Postulate number three: Whether open source or proprietary, it’s all about the boundaries of customization.

but I have some practical questions.

It is not uncommon for an institution that is considering the adoption of OSS to cite customization as a major factor in their decision making. In fact, one of the major themes that came out of this Series (Impact of OSS and OER on Education) was the benefits that could be derived from FLOSS through localization. Does anybody have anything to offer about how to take advantage of the potential to customize without “forking.” (examples would be great) Or, under what circumstances is it appropriate to fork a project?

What is the role of open standards?

⁷<http://www.educause.edu/apps/er/erm07/erm0720.asp>

⁸<http://www.open.ac.uk/>

⁹<http://www.imsglobal.org/>

¹⁰<http://www.imsglobal.org/learningimpact2007/li2007report.cfm>

¹¹<http://www.imsglobal.org/register/login.cfm>

2.2 2. richardwyles - September 22nd, 2007 at 6:34 pm

Hi Rob, Ken and colleagues,

A great thought provoking post. Regarding the boundaries of customisation, this is typically defined by easily workable programming interfaces (ideally correlating to open standards), system architecture and constraints of licensing - licensing constraints can also include incompatibilities between open source licenses. When you have a large community based open source project the architecture is often highly modular - e.g. Drupal, Moodle. This enables more customisation, plus better backwards and forwards compatibility. So individual institutions can have quite different configurations without forking. Moodle is a classic case where this application is being used for home schooling and institutions with many 10s of thousands of users. However, as the core code matures and it inherently becomes more complex and the skills and investment barrier for customisation can increase.

For Postulate Four, I'd like to refer way back to my post back in March here on Terra Incognita

Actually I'm proud to say that our work here on enterprise scale implementations of Moodle, particularly at the Open Polytechnic of New Zealand, helped Open University in their selection of Moodle.

Strategic adoption of open source infrastructure is happening in New Zealand at a pan-institutional level and may even start to impact the paradigm of institutional learning as we view it in a traditional sense. Over the past year I've been leading an initiative that has developed what we call Moodle Networks - it is a trusted Single Sign-on framework where multiple Moodle installations can be networked with all sorts of configurations possible. We used XML-RPC rather than a full Shibboleth framework. I often describe it as an "Intel inside" strategy whereby the institutional "nodes" are the access points to the network rather than typical (and in my view flawed) portal approach to learning networks.

It doesn't stop with Moodle. Mahara (www.mahara.org¹²) is to be the ePortfolio and student social networking platform that will be deployed as <http://www.myportfolio.ac.nz>¹³. This is a pan-institutional strategy that will bridge both further and higher education institutions. Similarly, open source repository systems where through the OARINZ project we are seeing wide-spread adoption of open source and OAI-PMH compliant repository systems deployed across the entire sector - DSpace, Fedora and Eprints are all being used.

All this is happening outside of any direct Ministry direction (although naturally consistent with the eFramework SOA direction) and so I would argue these are very much institutional strategies but even more importantly the national virtual learning environment is underpinned by open source and open standards. When working with Ken Udas back in 2004 we set up <http://www.eduforge.org>¹⁴ to help manage the various projects that make contribute to the overall framework. Being advocates of openness this was conceived as an open platform for anyone to use so it is heartening to see so many international projects there.

Anyway, I'm going on a bit here, excuse me ;-). Rob, perhaps I'll see you at the IMS meeting in Queenstown in November.

regards Richard Wyles

2.3 3. Rob Abel - September 22nd, 2007 at 7:22 pm

Hi Richard, Yes, I will see you in New Zealand . . . first time there and looking forward to it.

If you haven't already, I hope you submit your work for a LIA Award:

<http://www.imsglobal.org/learningimpact2008/li2008submissionregional.cfm>¹⁵

Best, Rob

2.4 4. Gavin Baker - September 23rd, 2007 at 7:00 pm

The reality is that unless you are Google, or of a similar size and market share, you will have an

¹²<http://www.mahara.org/>

¹³<http://www.myportfolio.ac.nz/>

¹⁴<http://www.eduforge.org>

¹⁵<http://www.imsglobal.org/learningimpact2008/li2008submissionregional.cfm>

extremely difficult time getting critical mass around your homegrown standard.

I would clarify that statement: *if it competes with an existing standard*. If you make a standard where there isn't one, if it's good, it may get adopted — see, e.g., RSS.

2.5 5. Gavin Baker - September 23rd, 2007 at 7:44 pm

Re: postulate 4, I feel like using FOSS should be strategic to the mission of the university in several ways. It would be helpful to articulate this well — to have a document that says, “This is why you should support this”. (That’s what I tried to do in my post on open access, for OER advocates.)

Who’s articulated that message well? If it hasn’t been done well yet, what would that message say? How does FOSS connect to the mission of the academy?

2.6 6. Rob Abel - September 23rd, 2007 at 7:55 pm

Hi Gavin, Thanks for the post. I would agree that something doesn't have to be a standard or worked through a standards organization to get critical mass of adoption. Many approved standards - in fact the majority of them - never get a critical mass of adoption. So, the point I would make is that it's a question of where you can get the right parties involved so they will adopt it. This is probably more important than if there is an existing standard already or not. A Google has such a huge market share and so many partners that follow their lead that they can create a snowball of adoption. This is why a large market-share leader generally needs to be convinced as to why they should spend time in standards organizations when they can dictate the actions of a large portion of the market.

My point relates to the educational open source efforts to date in that they have relatively small market influence and benefit greatly in a standards organization if it has enough participants to create that snowball effect.

I wasn't familiar with the history of RSS - I found this site - can't vouch for its accuracy: <http://www.rss-specifications.com/history-rss.htm>¹⁶

The way I read the history is that Netscape had a major role in RSS in the 1997 and 1999 era. Although Netscape dropped it, they were a very big dog in that time period and their efforts on it certainly signaled that it could be important to the market.

So, in a way, you are right that it certainly made its way without Google or a standards organization. On the other hand, it supports my argument as well in that there probably was fairly rapid adoption by the major browsers because they had been looking into this already and needed a solution.

Thanks again - you made a great point there . . . Best, Rob

2.7 7. Ken Udas - September 24th, 2007 at 4:37 am

Hello, Does anybody have any thoughts on the relationship between open standards and open source? I recognize that this is an overly broad question and could be taken in a number of directions, but I am thinking along the lines of what this means practically to folks who make technology adoption, support, and use decisions at schools colleges, and universities. For example:

- Could somebody take a minute and outline some of the benefits of open standards and how they might practically impact educational institutions?
- What are some of the practical challenges of establishing open standards?
- Are there qualitative differences between OSS and proprietary methods of production, licensing, code transparency, community, etc. that impact adoption of open standards and participation in standards development?

¹⁶<http://www.rss-specifications.com/history-rss.htm>

I guess that this is about strategic adoption of learning support, design, delivery, and presentation technologies. We all want to meet current functional needs, but recognize that we also need to shield ourselves from some of the risk of pursuing a technology cul de sac without a viable exit or migration strategy.

2.8 8. RedSevenOne - September 24th, 2007 at 1:58 pm

Has taken a while to digest the content of this entry, now having done so I would like to refer back to my comment Gavin Bakers entry ‘Open Access Journal Literature is an Open Educational Resource’ of 2007-09-05 (comment #3)

I agree with the points of the Four Postulates and they have become yet more fodder for the ongoing discussions as we advance our learning network out the Camp and on to the streets. I remain confident that at the end of the day Open Access will become a ‘Habit’ and universally accepted for. To use a analogy recently made about our own situation - ‘You hatched this dragon and now that it has learned to fly, have fun trying the get it back. . .’ Open Access will grow with the cooperation of the status quo, or it will replace and become the status quo and the sooner people embrace the idea the better it will become. I realize I am speaking to the converted, but we are a unique aberration, rapidly becoming a force and it is incumbent on us all to get people to listen.

‘Control+Ault+Delete’ is no longer the status quo. I love the quote of Tom Perkins in Wired Magazine 15.07 http://www.wired.com/culture/design/magazine/15-07/ff_boat¹⁷

‘No way Bill Gates is controlling my boat, – I don’t ever want to have to press Control-Alt-Delete to restart, to make my boat go.’

I suggest that this applies to more than Bill.

2.9 9. Ken Udas - September 27th, 2007 at 5:51 am

Hello. I would like to refer for a moment to Rob’s second postulate:

Postulate number two: Standards organizations are pretty much the only way to get a level playing field when it comes to new open source applications for learning – however, that won’t happen unless the open source projects/communities are active participants.

I very much also hear in Rob’s message that Open Standards require participation and activate involvement. I also understand that to achieve that type of participation, the standard development process must also be open.

How does IMS facilitate this? That is, what types of commitments does IMS have, and processes does IMS use to help keep the development of open standards open (and participatory)?

Thanks

2.10 10. Rob Abel - September 27th, 2007 at 7:04 am

Hi Ken, Great question. Excuse the brevity in the response as I am heading out on a trip.

Open standards organizations conduct business under rules and processes that vary by organization, not unlike the variation is how open source development efforts are managed. Just as decision-making on what gets in or out of an open source release is managed through some process or other, the decision-making on standards is also managed. IMS has been a form of organization that is a non-profit member based consortium in which it is the members that make the decisions through their votes. This is similar to most of the major international standards organizations, such as W3C and so forth. The large majority of community participation in the “openness” of standards work is at the same phase in which most of the participation is in open source - when the next official version is released. Thus, this is really use of the the specs which are openly available and free of royalties. In IMS we have some tools and processes we have put

¹⁷http://www.wired.com/culture/design/magazine/15-07/ff_boat

in place over the last year to support profiling of the specifications (customization for specific needs), for the community to use and thus contribute to the evolution of the work.

As with all standards organizations, IMS has various points and processes by which to engage if you are an interested party outside of the membership. These include open summits held in conjunction with our 4 quarterly meetings, our annual conference, making use of invited experts, open calls for participation, use of invited experts who may be non-members, and several tiers of paid participation in addition to membership.

We will also vary policies by workgroup depending on how we can get the best set of participants engaged. It's important to understand that our primary focus is on getting a sufficient set of committed parties involved in the development of the specifications as opposed to an all-inclusive participation. As discussed in one of the prior posts, the value of a specification is in its adoption in the marketplace. Having some type of inclusive participation of all comers in the spec development process and ending up with something that is not used to achieve interoperability is a failure from our perspective and from an open standards perspective. So, we are looking for commitment from major market participants and the membership model seems to fit that well.

But, who knows - we may evolve to a different or better model in the future :-) Best, Rob

2.11 11. Patrick Masson - September 27th, 2007 at 9:28 pm

Rob, Your introductory question got me really excited. "Open source, open content, open technologies, open standards – is there any relationship between these things?" I was hoping (dreaming, no fantasizing) your post would outline not only a technical roadmap, for implementing an architecture around integration and interoperability (I think these terms are often inappropriately interchanged, see below) between services, but also a political roadmap with advice for those looking to include standards as a technical requirement within campus systems.

But perhaps the introduction was not rhetorical, so I'll bite: yes I believe there is a strong relationship between these things. (Although I admit to being very thin with regard to open content, but the other issues related to openness: definitely)

The theme of Terra Incognita's "OSS and OER in Education Series" seems to revolve around learning management systems and the integration/interoperability (there they are again) of teaching and learning tools, with the contributions, perspectives, opinions etc. primarily from those within higher ed with some role in the design, development and/or deployment of educationally focused software.

I can't put my finger on it, but there seems to be another set of values, or perceived benefits, that drives interest in, and adoption of OSS, within education, particularly higher education—and I think the four postulates that Rob presents highlights this.

Reference Implementations. I'm not sure if a parallel can be drawn between Apache and Moodle, Sakai, uPortal, Kauli, etc. My interpretation of a reference implementation includes, not just the methods for collaboration, design, development, communication, control, governance, etc. but also the user-developers and "customers," i.e. those defining technical requirements based on functional requirements. Apache, the project, is driven by a (rather narrow) shared need and understanding of an http server. However, sitting through several conferences regarding educational technology, I'm not sure if there is a shared vision of how teaching and learning tools should function, and thus the technologies (including those standards). I never really know where a "Content Management System" ends and an "ePortfolio" starts; or if a Learning Management System needs a blog or wiki or both for "small group work."

Standards Organizations: I know I have played both the roles Rob describes, "Can I get the standards library for grade books integration/interoperability," (again): student, faculty, course, section, session, assignment, date, values, weights, etc. (or whatever you called them when you "standardized"). And of course, "this app will be so bitch'in everyone will want to use it and thus our specifications will become the standard. Yet the complexity of teaching and learning definitions and thus the feature set included in those tools don't allow for "standards" because there are no standard definitions for functionality. Again, what is a grade book vs. an ePortfolio, vs. a content management system? And thus what is a standard set of functions to be described? I guess I wonder what comes first, the standard or the definition?

Adding to the complexity is the architecture for integration and/or interoperability. Quickly I consider integration as the aggregation of content through a standard interface (I guess that's a double entendre): for example single-sign-on allows for multiple applications to be presented to the end user, perhaps through a portal. These systems all seem "integrated." Interoperability is the use of data generated in one application resulting in some event within another. For example, I add an assignment (including due date) in my LMS and that assignment shows up in my email calendar. How these services are obtained (integrated) and shared (interoperate) can be achieved by a variety of technical approaches—from point to point integration through an API to canonical data models—all requiring different "standards." In fact one comment made when we were connecting the Sakai grade book to a legacy LMS was that we, "should modify the OSID interface, currently the interface is only implemented in 'spirit'."

Customization: "Those that want open source solutions include in the key factors control and customization." I don't know if this is as important to those outside teaching and learning. I can tell you, as a programmer analyst and now CIO, I have never wanted to customize or control Apache or Linux. And while we are implementing Moodle at SUNY Delhi, we are not interested in customizing that either. My interest in open source is based on, what I consider more important qualities found in open projects: quality, support, pace of development, TCO and, germane to this discussion, adherence to standards or at least open specifications that we can then at least access to provide integration and hopefully interoperability. In fact, I have seen customization; arguably the most touted benefit of OSS next to it being "free," actually hinder adoption of open source and thus open standards. Again because those assessing the value of open source in teaching and learning applications tend to be those involved with teaching and learning, the prospect of having a customizable applications that can be modified to meet the diverse needs of the campus' faculty, unique teaching styles and/or specialized academic programs is very appealing. Yet as Rob highlights customization (forking) demands support, something IT shops are usually not interested in.

Open source can be strategic: Again, in my experience (and admittedly I have been in some messed up organizations), I don't see a lot of senior campus leaders looking at technology as an investment to "further the educational mission of the institution or further society's progress in the use of technology for learning." I see senior leadership providing the minimum in order to keep their faculty from storming the castle, or simply keeping up with the University of the Jones', or using technology of some scheme (e.g. distance learning to increase tuition dollars).

IMS is a great effort and I wonder how well the standards identification process is going with regard to services related to higher education, and more specifically teaching and learning, versus other technology efforts? Is my perception of the ambiguity in what teaching and learning tools are, and thus the functionality they have, as well as the alternate value/benefit of OSS accurate, and can this be the cause for such a slow process?

2.12 12. Rob Abel - September 28th, 2007 at 9:18 am

Hi Patrick, Very thoughtful. I have only a few comments to add for those who are interested in this rather eclectic world of learning technology standards:

Reference implementations and where do some systems end and others start: Ten years ago we did not know where the learning management system and content boundary was - as the CMS/LMS/VLE did not exist as a separate component - and in some cases (adaptive learning applications) we still don't. The evolution of the product categories and functions is ongoing. We have something we call the "Learning Enterprise" which is a diagram that we are working with interested parties (mostly vendors right now), to help inform the market what these interfaces are currently and what's coming next (see the Achieving Learning Impact Report for a view of this - see page 19 of the Exec Summary: <http://www.imsglobal.org/learningimpact2007/li2007reportExecutive.pdf>¹⁸).

Standards vs definitions: I spent a lot of time thinking about this coming into IMS and I think that most regulars at IMS meetings are tired of hearing my views on this. I'm convinced that the innovation comes first (e.g. world wide web) and then, either through the brilliance of the individual inventor or some other

¹⁸<http://www.imsglobal.org/learningimpact2007/li2007reportExecutive.pdf%20>

group of designers interacting around it, it becomes apparent that there are needed interface points that need to be agreed upon, and those are what become standards. I personally don't believe that a bunch of smart people sitting around a table can successfully architect anything - whether an interface definition or standard - in the absence of implementing. Again (see some threads above) this comes back to the "critical mass" of implementors and implementations. Until a true critical mass and majority of a market adopt something it is not a standard - it is simply a good idea, a toolkit, a development aid, etc. In learning technology right now, we have a bunch of the later and pretty much no actual standards. IMS Content Packaging is the closest thing to it in this market. However, we are doing our best to change that situation with some of the steps I outlined in the original post. We have high hopes and good signs on both Common Cartridge and Enterprise.

How well is the standards identification process going? - Well, IMS has about 20 approved standards and they all focus on teaching and learning. Many - probably most - were well ahead of their time in terms of seeing the future of learning technology instead of what actually existed in the mainstream at the time - things like Learning Design and Simple Sequencing come to mind but actually the majority were and still are ahead of the market. What is kind of exciting is that there seems to be significant renewed interest in IMS. We've had a double in membership/subscribers and participation in the last 18 months. What we are finding is that the great work that is captured in those 20 standards can be "profiled" and applied to what folks are interested today. For instance, in that base set of work we have all the tools we need to address tagging of learning content with curriculum standards per learning objectives, test for those, report on attainment, and change the sequence of activities for the learner. That scenario involves about six different IMS specs. So, what we are doing in some of the newer workgroups is applying that prior work in a group setting through prototyping and testing. From there we use the experience as input into how to profile the existing specs and create something like Common Cartridge - which is much better defined than past learning tech standards - so, it will actually result in interoperability and not just a nice toolkit or canonical architecture. This kind of stuff is a lot more fun and of more interest to developers than sitting around the table and talking about a specification document.

IMS is a member organization and my job is to do my best to represent what the board of directors and members want to do. However, my personal view of what we should be trying to do in IMS is to be a "force multiplier" with respect to investment in technology that improves teaching and learning. Despite all the money that is spent in the education and training sectors, a pitifully small amount is actually spent on advancing the R&D in learning technology. Education and learning is the most important priority if humankind wants to achieve a better future. It is also critically important for economic development. It's a long story, but, if we don't figure out how to apply technology to the learning challenge we are not going to improve much. It is the higher education sector in particular that has the most motivation and dedicated resources to address this challenge. The idea of standards and, in my personal opinion, IMS in general as a platform, is to maximize the investment across the various organizations and communities focused on advancing learning tech. We need to do this because the amount of current investment is small and we can't afford the normal reinventing of the wheel at every institution, country, and so forth.

Best, Rob

2.13 13. Patrick Masson - September 28th, 2007 at 3:11 pm

Rob, Thanks, you're spot on: "Despite all the money that is spent in the education and training sectors, a pitifully small amount is actually spent on advancing the R&D in learning technology."

I guess I am just so frustrated by that. I continually struggle with my colleagues about the role of colleges and universities: we should be innovators, not consumers, partners not patrons, involved in design not just deployed, etc. etc. etc.

Because in the end we are the ones who benefit most through not only better tools and thus better education, but better systems and thus better operations.

Keep up the good work, I am glad to hear of IMS' continued growth. Patrick