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What I Learned at the MAA Digital Library Workshop

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By Gizem Karaali

I have to admit that I am a regular (virtual) surfer, and sometimes this habit of mine takes me places. This is the story of one of those places, and involves colorful personalities, great catered food, and a tremendously ambitious project in the making.

Toward the end of July 2006, an item appeared briefly on the MAA website. This was the call for participants for the MAA Digital Library Workshop. Curious surfers like me clicked on it to find the description of this workshop, which was to be held over the course of a weekend in October 2006 in Washington, DC. The announcement included a cryptic sentence of the form "The primary aims of the workshop are to provide an overview of the two MAA digital libraries and of the National Science Digital Library, and to prepare participants to offer a short workshop on these digital libraries at MAA Section meetings."

I had spent (possibly more than) enough time on the MAA website before, so I did have an idea of what the Mathematical Sciences Digital Library (MathDL) was. But for those who have more important things to do instead of mindlessly surfing the Internet, I should perhaps summarize: MathDL is an online resource published by the MAA and accessible via MAA Online, the official website of the Mathematical Association of America. It currently has five components, which are:

The Journal of Online Mathematics and its Applications (JOMA): An online scholarly journal focusing on online learning materials, (JOMA is rigorously peer-reviewed and mainly publishes articles which make significant use of online tools and the World Wide Web in general as the publication medium)

Digital Classroom Resources (DCR): A free library of online resources for use in the classroom, (All items on DCR have been peer reviewed and classroom tested)

Convergence: An online magazine focusing on the history of mathematics and its uses in the classroom, (There is also a cool "On this day…" feature from which I learned that I am writing these notes precisely 163 years after Sir William Rowan Hamilton discovered the quaternions!)

MAA Reviews: The online continuation of the Telegraphic Reviews that used to be in the *American Mathematical Monthly*. The site has information on more than 2200 books and new books are constantly being added to the database; why not check out the MAA Reviews before you decide which textbook to use for your next algebra course or what book to recommend for your curious niece?

Classroom Capsules: An online database collecting together the wealth of short classroom resources available in the various MAA print publications. More than 10,000 such pieces have appeared in the MAA journals, and the process of selecting materials, classifying them appropriately, and making them available online is still ongoing.

A sixth component is in the works, containing all the MAA prize-winning articles. It should appear very soon.

So I knew more or less what the MathDL is. (As it turned out I knew less, rather than more; that is to come later in the story.) But I had no idea what this National Science Digital Library was. So I looked it up online; I confess, I went ahead and googled it. I was feeling lucky and I was not wrong, I got myself on the NSDL site, which was, according to itself, "the Nation's online library for education and research in Science, Technology, Engineering, and Mathematics." That sounded fascinating and certainly appetizing, but I had other things to do and so I left it at that. I just shot an application for the workshop to see what would come out of it.

When I received an invitation to the workshop I was very happy. I expected that I would learn a lot about the digital libraries. I was also hoping that I would meet interesting people, and I was looking forward to the chance to participate in the first workshop ever to use the MAA Carriage House Conference Center. This small building next to the MAA Headquarters in Washington, DC had been under construction for the last year, with the aid of a sizeable donation from Paul and Virginia Halmos. (During the week of our workshop, Halmos passed away, leaving a sad mathematical community behind him.)

Then came October, and it was time for the workshop. Teaching on the West Coast cost me the Friday dinner and the official introductions, but the Saturday morning, during breakfast, I had the chance to meet some of the participants and Lang Moore, one of the organizers. I was certainly glad, after hours of flying and staying in my hotel room, to finally get some fresh fruit and water and caffeine. Then we started.

The program was quite intense, and the organizers had planned for many short sessions. We first began with MathDL. I felt at ease because I, of course, knew everything! However, as expected, I still had so much to learn! For instance I had no idea that MathDL had been in preparation ever since 2000, and that in the beginning it was a joint venture with Math Forum. I also did not know how the tech boom (or more significantly, the following bust) influenced the development of MathDL. There were some quite interesting and juicy stories told and many only left to our imagination… All ended well of course, with the MathDL moving under the umbrella of the MAA in 2003.

Next we started discussing the Math Gateway, and after a handsome lunch, we continued in the afternoon. Simply put, Math Gateway is the mathematics portal of the National Science Digital Library; it aims to "bring together collections with significant mathematical content and services of particular importance to the delivery and use of mathematics on the Web." MathDL is one of these collections, but Math Gateway has several other partners. Among these are Eric Weiss-

tein's MathWorld, the well-established online homework system WeBWorK, National Curve Bank, College Board AP Central, and one of the oldest math resources online, the Math Forum, now housed at Drexel University. The focus of the Math Gateway is on undergraduate level mathematics education.

The last item on the agenda for the day was the National Science Digital Library (NSDL). In some sense, throughout the day we were looking consecutively at larger and larger scale projects; the NSDL is the largest of them all. MathDL is one big catalogue of resources, the Math Gateway is a catalogue of catalogues, each of which is like MathDL, and the NSDL is a catalogue of catalogues of catalogues.

NSDL is a project of the National Science Foundation. It initially began as a platform intended to publicize NSF-funded research projects and their results, which in itself is a solid, respectable goal. Sometimes, though, scientists and policy-makers get carried away in their dreams. In this case, too, somehow people started dreaming on and things got out of hand (in a good way!). NSDL was eventually transformed into this incredibly idealistic project of creating the ultimate online science library for the nation and the world.

Still in its development stage, the NSDL already offers its audience (K-12 teachers, librarians, university faculty, and others who are looking to find scientific and mathematical content from reliable online resources) material from over 1.5 million individual records. The end goal of NSDL seems to be becoming the virtual equivalent of the Library of Congress. The collections of the latter hold more than 130 million items, and so NSDL has a long way to go, but those of us who love Google (or plug in your favorite search engine here), but still hate it when a search yields hundreds of thousands of results which we then need to wade through to get what we really want, will be fine with waiting a while.

At various points during the workshop, we were told to pair up and try our hands at searching for resources to teach some topic of our choice. My partner was Gerard Kiernan of Manhattanville College, NY. We chose the Fundamental Theorem of Calculus and began our search. Since both Kiernan and I have strong opinions about how one should teach, some of the items we found on the databases we used received more criticism from us than enthusiastic support and interest. Nevertheless both of us could see how these tools we were learning to use would come in handy in our career.

On Sunday morning, we discussed the nature of our introductory workshops at our own local MAA section meetings. We were once again reminded about our part of the deal. Now, it was our turn and we would be asked to go back to our local mathematics communities and spread the word! So coming soon to a sectional meeting near you is your very own MAA Digital Library workshop! Keep your eyes open and be on the lookout for that friendly person who will tell you all about these digital libraries and then some more. (You will even get hands-on experience playing with the tools during the workshop!) But of course if you are like those of us who prefer instant gratification, you can always go ahead and check out these web resources on your own. Note that the MAA Reviews and the Classroom Capsules components of MathDL require you to enter in your MAA member number (this is the number you will find in the upper left corner of the mailing address on your FOCUS magazine) and password. Non-members can purchase access by buying a $25/year subscription. The other tools are all freely available, though Convergence requires (free) registration.

Me? I enjoyed the whole package. I learned a lot about what I can find on the web and where to look for it. I also learned that catered food can be delicious, and that there are some very friendly East Coasters who nonetheless love to tease us West Coasters. I met many wonderful people, two of whom are my colleagues from the Southern California region. The fact that we represent different parts of the educational spectrum made our conversations more stimulating. There were people who came from all over the country (approximately 20 of the 29 sections were represented in the workshop), and we even had international participation. On top of everything, walking from the hotel to the workshop and back, I had the chance to witness autumn with all her glory. Those of us on the West Coast do not often (if ever) get to see the beauty of the change of seasons. I felt lucky to have this scenery along with the wonderful workshop. I flew home with a cold, but also with the contagious enthusiasm of the idealism underlying this huge project.

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Tom Marley Wins Distinguished Teaching Award from Nebraska-S.E. South Dakota Section

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