Original Article

Teaching digital asset management in a higher education setting

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ABSTRACT According to a recent IDC report (Gantz, J and Reinsek, D. The digital universe decade – Are you ready? IDC Iview, May 2010) between now and 2020, the amount of digital information created and replicated in the world will grow to an almost inconceivable 35 trillion gigabytes as all major forms of media – voice, TV, radio, print – complete the journey from analog to digital'. This means that in 2020 the digital universe will be 44 times as large as it was in 2009. Public, for-profit and cultural heritage organizations are being deluged with rich media digital resources, while facing fiscal challenges. Digital asset management (DAM) professionals provide the skills needed to find efficient solutions for storage, retrieval and dissemination of these files. Most learn the profession on the job and through informal education such as webinars, podcasts, blogs, white papers and conferences. There are programs and courses emerging in schools of higher education. This article discusses the development and teaching of a course in DAM offered through the Columbia University Information and Digital Resource Management program of the School of Continuing Education. The author describes how the syllabus was developed, content of the course, assignments, readings and the use of collaborative tools to simulate the way that professionals learn from each other.

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INTRODUCTION

Isn't it strange how some opportunities just find you? In the fall of 2009 I received an email from a friend and fellow librarian. The president of the local chapter of the Special Libraries Association had contacted her about teaching a class in digital asset management (DAM) at Columbia University. The president was responding to an inquiry from the Academic Director of the Information and Digital Resource Management (IDRM) Masters program at the Columbia University School of Continuing Education. Since I'd managed photos and illustrations for the DAM system at

Scholastic Inc. for six years and had consulted on a DAM project at United Media, I contacted the Academic Director who expressed interest in meeting with me. Since I'd often thought about teaching on the graduate level, the offer that followed was one I was delighted to accept.

The decision to hire a librarian to teach the DAM course interested me. After all, DAM software offers a technical solution to the challenge of organizing growing collections of digital assets in organizations and I'm not a technologist. A similar course is offered at the University of California at San Jose (UCSJ) within the Masters of Library Science (MLS)

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program and is taught by a librarian, as one would expect within an MLS program. But the course at Columbia is part of the IDRM curriculum where the goal is to provide students with the 'formal training and technological skills demanded by the international information economy'.¹ The curriculum includes knowledge management, legal and policy issues, IT project management, global trends in information access, records management, vendor relationships, and information networks.² By selecting a librarian, Columbia was implying that the focus of the course was to be toward providing students with basic information management skills for application to digital assets. After all, technical solutions come and go and storage media change with the times, but basic information organization and retrieval skills have been applied to media as far back as 300 BC in the Great Library of Alexandria. We've come a long way since reading from ancient scrolls, but human information access needs remain essentially the same: We want to either create or be informed based on input from available information sources, usually within a specific timeframe.

OTHER DAM HIGHER EDUCATION COURSES

Henrik de Gyor compiled a list of formal DAM higher education courses on his blog, *Another DAM Blog*,³ in 2010.⁴ The seven courses or programs on the list are taught from different perspectives, originating in various university departments. One is the graduate course mentioned above at UCSJ as part of the Masters in Library Science program, another is offered at Zhejiang University in China as an undergraduate course, while another is a module in media asset management as part of the Faculty of Technology, Engineering, and the Environment⁵ at Birmingham City University, UK. The DAM course at Rochester Institute of Technology is taught as part of the Graphic Media Publishing undergraduate curriculum and there's a course called 'Archives and Preservation of Digital Media' at Simmons College that is part of the Graduate School of Information and Library Science program and focuses on 'archiving and preserving a wide variety of digital media (primarily text, image, sound, moving images, and web sites) as well as

thinking in a long-term way about overcoming the many challenges'.⁶ Most impressively, a full Master's degree called MADAM⁷ is offered at Kings College London, UK out of the Centre for Computing in the Humanities. The description of this program highlights the need for inclusion of issues related to the cultural heritage sector as well as those of corporations and other organizations:

Within the cultural heritage sector digital collections have grown both through the digitisation of existing cultural artifacts and the creation or archiving of new ('born digital') resources with the result that the management of these digital assets is now a significant activity. In the public, commercial and industrial sectors, more and more of the information created in the normal course of activity is in electronic form, whether as web publications, images, databases, GIS files, data sets, email, or documents in word-processed, spreadsheet or PDF formats. All these digital assets have value and utility to their host organizations and beyond, but many of these values and uses are not realized because of the shortage of suitably qualified and experienced staff.⁷

At the 2010 Henry Stewart DAM Symposium in New York City, John Horodyski and I presented about formal DAM education as part of the 'Training in DAM' session. John is a fellow librarian teaching the DAM course as part of the library program at UCSJ mentioned above. Henrik de Gyor, who moderated the session, discussed informal DAM education. Judging from the number of inquiries about remote access to the Columbia course for non-degree students, there is high demand for formal DAM training. As the Kings College course description mentions above, there's a great need for qualified and experienced digital asset managers in the cultural heritage, public and commercial sectors.

COLLABORATION

After graduating with formal higher education degrees we all know there's still a lot to learn in the 'real world'. This is especially the case for arenas such as DAM, where new products, features, technologies, media formats, standards

and organization needs constantly evolve. Professionals turn to associations, journals, blogs, wikis, email discussion lists, newsletters, webinars, podcasts, groups on LinkedIn, and more to stay abreast of what's new in their field. In this way professionals collaborate, share new discoveries, post questions and contribute to their community. We made these tools part of the course offered at Columbia. This provided a collaborative environment and a framework for following the DAM field as professionals in the students' work lives. Therefore, the course goals were written as follows:

The goal of this course is to prepare students for a vocation in digital asset management. This includes being active in acquiring knowledge and staying abreast of current news in the areas of DAM technology, standards, indexing of visual assets, workflow, search, retrieval and other issues related to the field. In order to prepare students for a career in DAM, the course introduces the major sources of information about the field in the form of blogs, webinars, podcasts, seminars, and journals. It is therefore expected that students will conscientiously follow the above sources noted in the syllabus. Students will be expected to be prepared to discuss the class readings. The instructor intends to be a facilitator in the process of learning about the field of digital asset management. It is expected that students and instructor will teach each other throughout the semester in a collaborative manner.

We used technology to collaborate by creating a wiki offered by the Columbia University Center for New Media Teaching and Learning. The wiki included RSS feeds to blogs: Another DAM Blog⁸ by Henrik de Gyor, Digital Asset Management by Paul Quigley,⁹ and Jill Hurst-Wahl's Digitization 101,¹⁰ DAM resources, pages for student final projects, student reviews of digital collections on the Web and a page for student biographies.

Given students' schedules, juggling school work with jobs, school and family, and the nature of our educational system, students didn't collaborate as much as we'd hoped. In our work lives, we acquire knowledge because we need to

or want to. We're motivated by the drive to further our careers and learn more about what we do 35 to 40 hours per week (or more). Despite the lofty goals of the DAM course, most students just wanted to get through the semester with a good grade, and either didn't have time or the motivation to fully collaborate. Hopefully, they'll use the resources they were exposed to when the time is right.

DESIGNING THE SYLLABUS

DAM is practiced in many different settings. With only 15 sessions, the course would offer an overview of the many topics related to DAM, some of which could easily be taught as distinct courses. For example, one could teach an entire course on digitization for cultural heritage organizations, focusing on preservation and archives, digitization equipment and techniques, collection assessment, and project selection. The same is true for metadata standards, taxonomy and search/retrieval of rich media.

The goals for the syllabus were to:

- provide a manageable scope for the course;
- provide a learning environment that would keep students engaged;
- encourage collaboration;
- deliver the key information required for a career managing digital assets in a variety of settings.

The syllabus content, in compliance with the goals of the IDRM curriculum, concentrated on DAM as an enterprise-wide program to centralize, standardize and organize rich media files and the metadata that is essential to their retrieval and security.

This bit of wisdom is important to remember: when teaching any course, especially one with as much depth as DAM, it's important to remember that no one can know everything about a subject area. The design of the syllabus would require extensive research and a willingness to learn. In many areas, the students and instructor would be learning together. This certainly turned out to be the case. For example, one of the students (a systems administrator) listened to a recommended webinar dealing with issues around software as a service (SaaS). The speaker commented that SaaS has limitations for environments with large files that need to be downloaded quickly because

of limited bandwidth within most companies. We turned to Jake Athey at Widen,¹¹ the DAM SaaS vendor, who was very helpful in answering our questions about the capabilities and limitations of SaaS. I was able to compose an email to the entire class so that we could all better understand the issues. This impacted on the students' final projects and their understanding of the technology.

As a guide to developing the syllabus, similar courses at other higher education institutions were researched, but as mentioned in the introduction, there aren't many DAM courses available worldwide. Full syllabi aren't freely available on the web, although there were some outlines available which gave a general idea about the curriculum. In many cases a syllabus can be designed around a textbook, but there aren't any current textbooks for DAM. Most of the readings were taken from journal and newsletter articles, blog posts, white papers, webinars and materials from standards organizations. There is so much material available about DAM that selecting and limiting readings was one of the most challenging tasks and included balancing coverage of cultural heritage and corporate DAM environments.

Perhaps due to my background in libraries and archives, issues around archives, preservation and digitization were recognized as an important part of the knowledge base required for IDRM students. We read case studies from museums and devoted one session to preservation, archives and digitization. We also toured the Columbia libraries digitization lab, and included a museum as one of the case studies for the students' final projects.

The full syllabus is available through Columbia Courseworks.¹² See the endnotes for the link. Here's an outline of the topics that were covered:

- Introduction to DAM
- Building the case for DAM and the content inventory
- User requirements and the DAM team
- Digital rights management
- Workflow
- Metadata
- Managing video
- Image indexing and retrieval
- Overview of the DAM marketplace

- Data migration and import
- Digital asset formats and overview of digitizing equipment and software
- Preservation, archives and digitization

Five guest speakers were invited from various DAM settings. This greatly enhanced the learning experience by bringing the 'real world' to the classroom. We invited speakers from an ad agency, a book publisher, a licensing and syndication company, an expert on video management and preservation, and the Director of the Preservation & Digital Conversion Division at Columbia University Libraries. All speakers introduced their talk by discussing their backgrounds, experience and education so that students could get an idea of their career paths.

THE STUDENTS AND THEIR BACKGROUNDS

The students enrolled in the IDRM program at the Columbia School of Continuing Education are a diverse group. Some are Columbia University employees, while many work in private industry and the public sector. The Spring, 2010 DAM class was made up of 14 students that held the following positions:

- International finance manager
- Information resources clerk, law firm
- Human resources administrator
- Health information manager
- Coordinator
- Media asset manager
- Systems administrator
- Data control specialist
- Personal assistant to Chairman of a large corporation
- MRI technologist
- Clinical research coordinator
- Media technology specialist
- Administrative assistant

As you can see, there were a few students with technical backgrounds and one working as a media asset manager for a large network. Others were new to the technology and DAM arenas. All were seeking to either change their career path or enhance their knowledge for their current position. Students were eager to work with digital resources in some manner,

but weren't sure which area or setting would be the right fit for them.

The students' knowledge of metadata, taxonomies, indexing of images, search and retrieval, and basic information classification was limited. The IDRM program doesn't yet include a basic course in information classification and metadata. Since one of the primary purposes of DAM is to enable fast and efficient retrieval of rich media assets through application of appropriate metadata, the 'information science' component was an essential part of the syllabus. For example, three class sessions were spent discussing metadata and taxonomy. As mentioned above, we could easily have spent an entire semester on the subject.

As evidence of this, out of all the assignments, students had the most trouble when asked to apply metadata to images they uploaded in a DAM using the Dublin Core metadata standard.¹³ Widen gave us use of their SaaS DAM product throughout the semester. We configured the Widen asset data entry form with selected Dublin Core fields and provided 'Using Dublin Core – The Elements'¹⁴ as a guide to using the standard, with examples. An email detailing use of this document was also sent out. (Since the class met only two hours per week, emails were frequently sent between classes to answer questions and clarify assignments.) Many students had trouble adhering to the standard data entry format and filling in all the fields accurately and consistently. Examples included 'Date' or other fields left blank, words misspelled, inconsistent use of upper and lower case, 'Resource Type' marked N/A (for not available) instead of 'image', for 'Source' providing only the Google image link. The assignment clearly demonstrated the students' lack of library and information science background (and also the challenges inherent in having non-professionals apply metadata to DAMs).

Many DAM managers either train users to do data entry, enter data themselves, supervise this function, and configure metadata fields and search, so a basic understanding of the principles of library and information science is essential. For higher education programs offering DAM courses, a pre-requisite should be a basic course in information classification and metadata.

TEXTBOOK AND READINGS

After researching textbooks for the course, we decided to use *Digital Asset Management*, second edition, by David Austerberry.¹⁵ Although outdated (the second edition was published in 2006), the text gives an overview of most of the course topics and frankly is the only book currently on the market that covers more than one type of DAM implementation. Others concentrate on either photography,¹⁶ animation and computer games,¹⁷ or content management. Although the course isn't technically oriented, the DAM report published annually by Real Story Group¹⁸ would offer students an overview of the DAM marketplace and features of the various products, but it's not affordable for individual student purchase and the university library doesn't own a copy. For the fall 2010 semester, Columbia has purchased the report for use by the class. This report will be a valuable addition to the students' experience, but doesn't include all elements of the syllabus. For the digitization and cultural heritage project component of the course, *Digital Imaging: A Practical Handbook* by Stuart D. Lee¹⁹ was recommended, but not required.

Fortunately, there's a wealth of information available either through the Columbia University library databases, or on the Web in the form of white papers, journal and newsletter articles, blogs, webinars, and podcasts. The journals most frequently consulted were *JASIST* (*Journal of the American Society for Information Science and Technology*),²⁰ *D-Lib Magazine*,²¹ *Journal of Digital Asset Management (JDAM)*,²² *Broadcast Engineering*²³ and *KM World*.²⁴ As a matter of fact, one of the biggest challenges was limiting the reading list to a manageable size. It was tempting to include every interesting article, report, or white paper, but there's a limit to how much students can absorb and read in one week. Many readings were 'recommended', but not required.

A significant number of the readings included case studies from *JDAM* and other sources. The organizations included advertising agencies, museums, universities, media companies, pre-press vendors, merchandise companies, and more. Through reading case studies, the students got the clear message that no two DAM implementations are the same. Organizations'

cultures, missions and structures have a strong impact on adoption, implementation, and on selection of a DAM vendor.

One of the goals of the class is to prepare students for a career in DAM. Therefore, the course of study wasn't designed to be purely academic. The inclusion of vendor webinars, podcasts, white papers and consultant offerings brought a real-life dimension to the course by simulating the type of learning professionals participate in throughout their careers. Also, the price is right for both students and working professionals since these offerings are free. We remained vendor neutral, but took advantage of free webinars offered by Media Beacon²⁵ including relevant topics such as video management, metadata, tagging, ROI and the business case for DAM. Earley & Associates, a content management, search and taxonomy consultancy offered a free introduction to DAM 'jumpstart' webinar series in spring, 2010.²⁶ The series was offered to the class as an extra credit option.

LEARNING ACTIVITIES AND ASSIGNMENTS

We tried to make the learning experience as engaging and enjoyable as possible. Learning activities included:

1. Class wiki – The class page contained a link for each student where they posted a photo and their background or bio. There were four groups for the final projects. Each group had a page where they could share documents and any other information. One page on the wiki included RSS feeds for the blogs we followed. Students were required to comment on blog postings, and used the discussion link on the wiki to post them. We used a 'Resources' page to post articles, white papers and links of interest for the class to share. The first assignment was an evaluation of several digital collections on the web. We had a page dedicated to that assignment, so that students could share each other's evaluations.
2. Blogs – Students were required to follow three blogs (see references). Since the DAM sphere is ever-changing, keeping up with DAM news is essential. This assignment was offered as a guide for keeping up with news about the field.
3. Widen DAM SaaS – Widen provided free use of their SaaS product. Each student had a user name and password that enabled them to upload images, apply metadata and email the images to others.
4. Guest speakers – DAM professionals contributed greatly to the course as guest lecturers. The students loved hearing about real-life implementations and the speakers' backgrounds. We'll be introducing more speakers next semester.
5. Site visit – The class visited and toured the digitization lab at Columbia University Libraries for the digitization and preservation portion of the course. After this tour, several students expressed interest in pursuing careers in this area. Janet Gertz, Director of Digitization and Preservation for Columbia University Libraries, spoke about digitization and preservation projects at the library.
6. Final projects – The semester culminated in four final projects. Each group of three to four students prepared a presentation summarizing the business case for a DAM system. The four fictional case studies were a newspaper publisher, an art museum, a medium-sized book publisher and a local television station. A term paper described the DAM project in full, from building the case for DAM to corporate culture issues that impact implementation and adoption. The students did a terrific job of incorporating course content into this project. One student, in particular, created a metadata schema that demonstrated a thorough understanding, integrating several standards into the schema. It was one of the most professional schemas I've ever seen.

For next semester, we've been invited to the Metropolitan Museum of Art in New York City for a tour of their digitization area and DAM system, so will take advantage of that opportunity if we can.

For the first semester, the midterm assignment was a take-home exam with essay questions. Instead of this, next semester the students will be required to visit a DAM site, view the DAM and interview the manager. They'll share their experiences on the wiki so all can learn about how DAM is employed in a variety of settings. It's important for students to

have as many experiences viewing DAMs and hearing about what happens in actual environments. It's difficult to do this in a classroom setting and although case studies are helpful, there's nothing like going to a site to see the DAM in action.

CONCLUSION

Teaching this course was very gratifying, especially since students in the Columbia IDRM are highly motivated to learn about and acquire information about managing digital resources. The students gave an excellent rating to the course, so it seems they were satisfied with the knowledge gained and the teaching style. When they presented the final projects, it was rewarding to see that they absorbed and understood much of the course content and were able to apply the knowledge to a particular DAM setting.

There's always room for improvement. Here are the areas that we'll be working on in coming semesters and suggestions for the DAM community:

- One 15-session semester is enough time to present a survey of DAM, but isn't sufficient to provide much detail about many of the course topics. Readings and a bibliography were provided for further study. For example, digitization, preservation and archives were covered in only one session, when a digitization and archives course could easily be taught as another class.²⁷
- Although this isn't a technical course, it's helpful for students to see the DAM systems they read and hear about throughout the semester. In future semesters, an effort will be made to introduce a few more product demos into the sessions.
- The IDRM program isn't a library science course of study. As noted above, students' limited knowledge of information organization and retrieval, including metadata, made it necessary to spend much time on providing a foundation in this area. It's been recommended that a separate course be offered.
- A current textbook for DAM is needed.
- Total freedom is given to the instructor when it comes to developing the syllabus, creating assignments, finding guest speakers, researching readings, developing lectures.

This is a great asset because you have the opportunity to be creative and teach the course using your own professional experience and style. Collaboration with colleagues would be helpful to share ideas on teaching methods and tools.

- Conferences and symposia are an excellent way for students to network, learn about products and educate themselves about the field. Although the conferences offer student discounts, the price is still too high for most to take advantage of these offers.
- Internship opportunities in DAM would be a welcome addition to the program. Columbia is planning on this for future semesters. Note that Henrik de Gyor recently introduced a site for DAM internships at DAMinternships.com.²⁸

Teaching is a wonderful opportunity to share professional knowledge, experience and expertise. It's mostly though, an incredible vehicle for learning about a subject area and for creating rewarding relationships. DAM is a growing field. People are hungry for courses that will help them transition to DAM, grow their careers, or learn more about their current position as DAM managers. If you're in a position to teach, I highly recommend it. For future instructors and students, hopefully more courses will be offered in the near future either through distance learning programs or in your local area.

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