

LUCIVISION

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Introduction

The Library of University of California Images (LUCI) was introduced to the Visual Resources Association (VRA) membership in the Spring of 1998 at the Philadelphia VRA conference.¹ LUCI consists of a bank of digital images with descriptive cataloguing that is being shared amongst the University of California (UC) campuses and with the world at large via the Internet.² This paper will provide a progress report and focus on how the LUCI participants utilized the VRA Core Categories for Visual Resources (VRA Core) and the experience of the VISION project to bring three disparate slide archives' data together in a union catalogue.

LUCI has been a collaborative effort involving staff on the Berkeley, Irvine, and Riverside campuses, although the inclusion of other UC participants is being encouraged and planned for the future. The visual resources professionals working on LUCI - Maureen Burns (UCI), Madelyn Millen (UCR), and Maryly Snow (UCB) – have been the most actively involved in the implementation of the project so far with the indispensable assistance of a variety of staff members on all three campuses and the Museum Informatics Project (MIP) at Berkeley.³ The project is very near completion with only a few hundred slides left to catalogue, map, and add to the database. LUCI will then consist of 1,360 digital images

related to the ancient Greco-Roman world. Once this phase is completed, faculty participation will be encouraged and it will be interesting to determine if the LUCI images are most useful for: instructional tutorials; image study and research; projection in the classroom; on-line catalogues; and/or other purposes.

Process

LUCI has been two years in the making and was inspired by the UC slide curators' desire to collaborate in the new digital environment. It was also motivated by a funding opportunity provided by the UC Office of the President.⁴ Intercampus Academic Program Incentive Funds were provided two years in a row to cover the costs of image production, enhanced staffing, and travel expenses. The Berkeley, Irvine, and Riverside campuses matched these funds by providing the computer hardware, software, technical support, and general supplies.

Once the funding was in place, the three participating visual resources professionals proceeded to locate and organize the slides of Greek and Roman art and architecture from each collection available for inclusion in the project. The 35 mm slides were then sent out to be digitized on Kodak Photo CDs: UCB contributed 460 images, UCI 750, and UCR 150. When the CDs were returned, it was necessary to check the images, create a concordance with the slides, and start considering quality control. Steven Brooks on the Berkeley campus and Karen Genet at Riverside completed visual edits of the Photo CD scans and transferred the digital images to JAZ storage disks. The scans were then mailed and /or delivered to the Museum Informatics Project (MIP) at Berkeley. MIP is

Berkeley's collaborative project created to coordinate the application of information technology in museums and other non-book collections as well as provide campus supported digital repository services. They are supporting our project because they already work in collaboration with UCB's Architecture Slide Library.

From the start, the three UC slide collections and staff had varying levels of experience with the new digital technology. Maryly Snow had the most expertise to share in the LUCI project since she has been developing an online catalogue (SPIRO) complete with digital images for Berkeley's Architecture Slide Library since the mid-1980s.⁵ Madelyn Millen had obtained valuable experience building digital image tutorials for the survey of Art History courses at Riverside. Maureen Burns at Irvine had taken a course in which she was introduced to the technology of collections management and was provided hands-on experience with digital scans, but had yet to implement a project. These various experiences reflect the range of faculty interest, staff, budgetary support levels, and technical expertise available on each campus. Berkeley had a system in place for digitizing slides and sending the visually edited images on to MIP which also supports SPIRO. This was the model upon which the LUCI project was based, but Irvine and Riverside had to work out their own protocol.

Meanwhile the classification and cataloguing of the images commenced. UCI and UCR both use the same software for cataloguing and collection management, i.e., Visual Resources Management System (VRMS).⁶ This is a DOS-based database program that has been in place at UCI and UCR for the

last decade which allows the two slide collections to easily share data. VRMS is a menu-driven software program with fully relational databases for cataloguing individual art slides.⁷ There are thirteen fields of varying length in which cataloguing information can be entered. Due to the limitations of the fields, Irvine and Riverside had not been able to maximize their use of vocabulary control tools such as the Art and Architecture Thesaurus (AAT). A “keyword” field in VRMS provided only a maximum of 54 characters for subject indexing. The limited nature of this field was further complicated by the different customized keyword authority tables existing in each archive.

Since Irvine had more cataloging to accomplish than Riverside, it was decided that the Irvine data would be downloaded in a VRMS sub-base and sent to Riverside where it would be exported to Microsoft’s Excel spreadsheet program. The data was mapped to the LUCI data categories decided upon by the group (see the Metadata section below). Then the Riverside staff added the AAT subject indexing information and the data was sent to MIP at Berkeley to be united with the images.

MIP has agreed to provide support for our project in three important ways: 1) storing and archiving the images in their repository; 2) converting the images to the JTIP pyramidal format to provide high resolution images to the UC campuses and zoom capabilities, but only thumbnails to the Web; and, 3) providing a powerful, user-friendly search engine for the LUCI data that is relational and searchable by subject, title, location, creator name, source, and

image owner. We have greatly benefited from their technical expertise and are fortunate that they are interested in expanding and archiving this resource.⁸

Metadata

Once assured of MIP's integral assistance with LUCI, it was necessary to face the daunting task of selecting a structure for metadata management. The trio of curators met in Maryly Snow's office, reassured by the paraphernalia of the traditional slide collection, to review options and choose the best system for organizing and transferring the textual information to MIP. Of the three of us, only Maryly Snow had previous experience with the VRA Core as a result of her work on the VRA Data Standards Committee.⁹ Due to her active involvement in the VISION project that is creating an application using the VRA Core, Maryly also had access to the VISION template then in development.¹⁰ Having the benefit of using both the VRA Core and the VISION template, we tended to choose freely between the two according to what seemed to work best with the LUCI data.

Other metadata were considered, but none seemed to work as well as the VRA Core and VISION template. The Dublin Core was eliminated because of its limited descriptive fields and its lack of emphasis on architecture.¹¹ We also found that although the Getty Information Institute's Categories for the Description of Works of Art (CDWA) contained an extensive list of elements for the description of objects, it was not entirely adequate for the categorizing of the LUCI images.¹² It lacked some of the elements needed for architecture and other site-specific works. Since LUCI is largely composed of architecture and features

numerous photographs of in situ art objects from the Bay of Naples area, CDWA did not completely work either. Much of the terminology and many definitions from the CDWA were used to develop the VRA Core so, it was concluded that the VRA Core's recently released Version 2.0 would provide the best guidelines for mapping our LUCI data to the MIP database tables.

The initiates to the VRA Core were pleasantly surprised at the painlessness of the process. VRMS has fewer fields with more limitations in comparison to SPIRO and so it took us a while to get past these differences. After a review of the Core elements and definitions, we easily selected the most relevant to our project from both the Work Description Categories and the Visual Document Categories. True to the Data Standards Committee's intentions, we were able to use the VRA Core and VISION template to pick and choose the appropriate elements for the LUCI descriptors and it allowed us to customize a local set of elements with which to structure the LUCI image documentation. We eliminated several categories, among them the following Work Description Categories: W7= Role; W16 = Subject; and, W18 = Relationship Type. From the Visual Document Description Categories we elected not to use the following: V1 = Type, V2 = Format, V3 = Measurement, V4 = Date, and V8 = Subject. The result was a set of 21 elements which Maryly then entered into a spreadsheet featuring comparisons with the VRA Core, VISION, SPIRO, and VRMS data fields (See Appendix 1). As the mapping progressed, it became necessary to add a notes field for supplementary information and the W16 = Subject field was added to accommodate iconographic names.

We brazened all of this out, because the testing and evaluation of the VRA Core in the VISION project was not scheduled for completion in time for us to use these results. Our own template for the LUCI data featured twenty-two columns for the selected fields of information. A system was devised for translating the VRMS cataloging information into a format that could then be prepared for export to the MIP database. As the cataloging was completed at Irvine, the information was saved to a floppy disk and mailed to UCR.

In Riverside, the staff opened and viewed the VRMS sub-base in MS Excel 5.0. The Excel program automatically organized the VRMS data into columns representing each data field. The information provided was easily edited in Excel and only the information relevant to our project was retained. Information was eliminated from the VRMS sub-base information, such as: call numbers, slide numbers, and other information not relevant to LUCI. Yet, almost all the other information was preserved including the unique accession numbers assigned by VRMS that were later used to map the data to the image files. For this purpose, a concordance was created of Kodak Photo CD numbers in relation to the VRMS accession numbers.

Once the VRMS data was edited, a worksheet was printed from this file. The data mapping was then accomplished by reviewing the sub-base information for each image and manually typing each descriptor in the appropriate fields. This part of the project proved to be more difficult than originally thought for several reasons. Unfortunately, we were not aware of a method to accomplish the electronic transfer of this information from one Excel spreadsheet to another,

and it was necessary to type the information in each field onto the LUCI data sheet. Although time-consuming, this process did present the opportunity for a review of each part of the record before entering it in the appropriate column. Almost every field required some editing. The pipe delimiter (|) was inserted in fields with multiple entries and the AAT-linked entries often required the addition of qualifiers based on AAT protocols and were changed from singular to plural spellings.

Another step in the process of transferring the data required establishing data content standards. Even though neither the LUCI “date” nor “size” fields are searchable, we agreed that we wanted conformity in the presentation of dates and dimensions. Each of us use different formats in our collection databases, but after a brief debate, we agreed on the use of metric measurements and the dating conventions of Common Era (CE) and Before Common Era (BCE).

One of the more difficult challenges in the data mapping process was to surrender the tendency to classify rather than provide rich visual description and identification. For example, a visual resources collection may organize its architecture as well as the works in situ all within the architecture area of the collection. Consequently, the call number, which assigns shelf order, must reflect the architectural subject matter. For example, a mythological wall painting in an exedra off the inner peristyle of the House of Menander in Pompeii would be found on the shelf in its architectural designation. Whereas in the digital environment, there are numerous ways to access this image, to name a few searchable terms: exedrae, fresco painting, Diana, and Actaeon’s Punishment.

Note that some of these are architectural terms, some relate to medium, and others to iconography, but they are all valid access points to where the image can be found in a digital environment.

It is anticipated that LUCI's patrons will include both university freshman and scholars alike. Their individual approaches to searching LUCI will reflect their level of expertise. MIP staff advised that we use narrower terms when entering data values for our LUCI fields to facilitate searches that use broader terms. For instance, a patron in search of a roadway in Herculaneum can search under "streets" and successfully retrieve an image that actually uses the narrower term *cardo* or *decumani*.

The LUCI database relied solely on the AAT for its data value standards. MIP has the AAT data stored in Sybase database tables for use in campus applications including SPIRO. As the LUCI data sets are sent to MIP, via e-mail attachments, the MIP programmer exports the Excel files as tab-delimited text, which is then fed to a Perl script to process the data for importing into Sybase relational tables. MIP uses a version of the Perl language known as Sybperl, Perl with Sybase extensions, for manipulating data (parsing the data, assigning internal IDs, etc.) while checking against data already in Sybase databases. The LUCI subject terms in five Excel columns (object types, techniques, materials, culture, style/period, and other subjects) are checked to see if they exist as preferred AAT terms. If so, their AAT IDs and hierarchy information are moved to the LUCI data, and they are marked as AAT terms (rather than local terms). The

Perl script creates an individual file for each Sybase table, which is then "bulk copied" (bcp) into the LUCI database.

Conclusion

The VRA Core and VISION template provided a functional framework for uniting three separate slide collections' data into one combined single data set. They delineated both the necessary elements and the correct approach for describing visual documents. It took the three LUCI participants a mere afternoon of wrangling to determine how to accomplish a union catalogue of LUCI data. Without the VRA Core and VISION template to simplify this complex task, we would probably still be trying to come up with a metadata standard for LUCI. In many ways, LUCI has provided a small-scale experience similar to that of the VISION Project and we found the VRA Core to be flexible and functional. This metadata experience is now fondly referred to as LUCIVISION.

LUCI required collaboration far beyond our original prediction and is an example of the kind of creative leveraging needed in this new digital world. LUCI has benefited from resources and professional activities way beyond the UC system as seen in the strategic role of the Visual Resources Association in encouraging collaboration, disseminating current information, sharing resources, and, more specifically in this case, developing and testing metadata. The VRA Core and VISION projects have facilitated and enabled LUCI to cross the traditional lines of discipline, geography, and institution in combining three campuses visual assets. The model for intercampus digital image sharing is in place and the years ahead will show how LUCI may enhance the teaching and

learning experience in the Arts and Humanities. We are pleased to report that there is a system-wide interest in expanding the image data bank project. The work on LUCI continues.

Appendix A

VRA CORE	LUCI DATA SET, Version 1.0			Excel UCI & UCR	
	VISION	SPIRO UCB			
1-Object Type	W1-Work type	Object type	1-Object Type terms	Sub	
2-Techniques	W5-Technique	Heading AAT View AAT	2-Techniques	Sub	
3-Materials	W4-Material	Heading AAT View AAT	3-Materials	Sub Sub	
4-Dimensions	W3-Measurements	Size	4-Size	Size	
5-Titles	W2-Title W2-Variant Title	Object Title Alternate Title	5-Title See 21	Title Title	
6-Larger Entity Names	W17-Related Work	Parent Title	6-Title (Larger)	Title	
7-Dates	W8-Dates	Start Date End Date	7-Date	Dat Dat	
8-Subjects	W14-Style/Period W16-Subject	Heading AAT View AAT Period AAT Subperiod AAT	8-Subjects (Styles, Periods, View terms, etc.)	Sub Sub Sub Sub	
10-Repository Place	W10-Repository Place		9-Repository Name	Rep	
12-Site	W12-Current Site W13-Original Site	Location ?	10-Repository Place 11-Place (Original Site) 12-Repository #	Pla Pla Rep	
11-Repository Number	W11-Repository Number				
14-Creator	W6-Creator	Personal Name Associated Name Alternate Name	13-Creator	Cre Cre Cre	
15-Nationality	W15-Nationality/Culture	Parent Loc-Country	14-Location (object)	Pla	
16-Culture	W15-Nationality/Culture	Period/Subperiod AAT	15-Subjects	Sub	

17-View Description	V7-Visual Doc. View Desc.	Description+Detail	16-View Descrip	View
19-Image Owner	V5-Visual Doc. Owner	UCB	17-Image Owner	Ima
20-Owner Number	V6-Visual Doc.Owner #	Image ID	18-Accession #	Ima
		Photo CD #	19-Photo CD #	Ima
21-Source	V9-Visual Doc. Source	Source abbrev_detail	20-Source	Sou
			21-Alternate Title	Title

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Searchable fields: The Techniques and Materials fields can remain separate from the subject fields, and be conflated into the other subject field

Subject

All fields which will go into the Subject field can be entered in multiple copies, separated by the pipe delimiter (|)

Title

Place

Creator

Source

Image Owner

Format for creator name is last, first. If there are multiple creator names, separate them with the pipe (|) delimiter.

All other information will

Title can also include multiple names separated by the pipe (|) delimiter. Multiple names separated by the (|) pipe delimiter.

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be in the label identification
but will not be searchable.

All titles and variants will be searchable in the title field.

17 = UC Collection; UCB, UCI, or UCR

7 = Date. Because it is not searchable, use a date convention that you want displayed with your record. The Vision project has excellent

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¹ The paper was published in the VRA Bulletin, volume 25, number 2, in the Summer 1998 issue and can be found on the VRA Web page at <http://vrl3.arts.ohio-state.edu/vrab/index.htm>.

² The LUCI Web address is presently: <http://138.23.70.244/luci/luci.htm>. We are in the process of trying to make the URL simpler and more straightforward so, this may change in the near future.

³ Acknowledgements for the LUCI project can be found on the LUCI Web site mentioned above. More information about the Museum Informatics Project can be found at <http://www.mip.berkeley.edu/>.

⁴ The Intercampus Academic Program Incentive Fund provided more than half of the support for LUCI project. See <http://www.ucop.edu/acadinit/iapif/welcomenew.html>.

⁵ SPIRO is an acronym that stands for slide and photograph image retrieval online. See the SPIRO Web site for additional information at <http://www.mip.berkeley.edu/spiro>.

⁶ Upgrades to Re:discovery software at UCI and Filemaker Pro at UCR are in progress.

⁷ For a detailed discussion of VRMS, see Norine Duncan, "Visual Resource Management System: Software for Cataloguing Art Slides" in Computers and the History of Art, Vol. 4.2, 1994, pp. 25-34.

⁸ Sincere thanks to Thomas Duncan, Director of MIP, and his staff for their enthusiastic support of the LUCI project. Susan Stone, the MIP programmer/analyst assigned to the LUCI project, has been extremely helpful and patient in providing advice, expertise, and assistance in general.

⁹ See the VRA Web page for more information on the Data Standards Committee at:
<http://www.oberlin.edu/~art/vra/dscintro.html#II>.

¹⁰ For more information about the VISION project see the VRA Web page at:
<http://www.oberlin.edu/~art/vra/vision.html>.

¹¹ For a good article related to the Dublin Core, see Tony Gill's "The Dublin Core Metadata Element Set" in Spectra Vol. 25, 2, Winter 1997, pp. 40-46.

¹² For more information on the CDWA see: <http://www.gii.getty.edu/index/cdwa.html>.