

The Ball State University Digital Media Repository: A Global Resource for Research, Teaching, and Learning

Arthur W. Hafner, Ph.D., Dean of University Libraries

John B. Straw, Assistant Dean for Digital Initiatives and Special Collections

Ball State University Libraries

Introduction

The Ball State University Digital Media Repository (DMR), <http://libx.bsu.edu>, is a project of the University Libraries to provide a centralized, coordinated, and user-focused resource to serve the teaching, learning, and research needs of students, faculty, and researchers. It is the digital collections and projects of the University Libraries in a single, cohesive, and accessible Web-based environment, while also providing access to external digital resources to support the educational processes for instructional objectives and learning outcomes.



Digital Media Repository, A project of the University Libraries

The focus of the University Libraries' digital initiatives is to provide an infrastructure that allows users to bring together diverse, interdisciplinary materials conveniently and expeditiously in powerful new ways. Through its digital initiatives, and specifically with the development of the DMR, the University Libraries serve as a strategic, global access point for all types of e-content for the Digital Revolution's 24/7 information society. In addition, the DMR allows this institution to play an instrumental role in adding to the growing corpus of international digital content.

The DMR has demonstrated tremendous growth and potential since its beginnings in late 2004. It has increased from two collections containing approximately 2,000 digital objects to 72 collections with more than 120,000 digital objects at the time of this writing. It is a collaborative resource, not limited to only the University Libraries' collections. Participants and partners include faculty and academic departments, students, community members and organizations, and other local and regional cultural, historical, and educational institutions. Examples of external partners include the Henry County (Indiana) Historical Society, Muncie Public Library, National Association for Interpretation, *Muncie Times* newspaper, and the U. S. Vice Presidential Museum of the Dan Quayle Center.

The growth of the DMR has provided a strong foundation for the development of supplementary and complimentary digital initiatives by the University Libraries, including:

- Cardinal Scholar Institutional Repository, <http://cardinalscholar.bsu.edu>, to promote open scholarly communication, provide access to Ball State faculty and student work, and promote Ball State's intellectual capital to a **worldwide audience** by serving as an integral element of the University's research publishing distribution strategies
- Digital Commons portal on the University Libraries' Web page, www.bsu.edu/library, provides **anytime, anywhere access to thousands of external digital resources**, such as images important to the studies of art, architecture, U.S. and world history, as well as oral histories, geospatial resources, news, videos, blogs and many other collections.

- Ball State University Virtual Press, www.bsu.edu/virtualpress, to facilitate content aggregation and access management of digital academic publications produced by faculty, students, and the University
- Virtual Ball State University Libraries, www.bsu.edu/libraries/archives, in the multi-user virtual environment of Second Life to provide interactive exhibits, digital resources, videos, and reference services to the **expanding user population participating in this 3D world**

Background

The genesis of digital projects in the University Libraries began in 2003, about a year before the DMR was developed. The Libraries' first digital collection consisted of about 1,000 historical photographs scanned by Archives and Special Collections and made available on the Libraries' Web site through a "homegrown" system created by the Libraries' in-house unit, Library Information Technology Services. When Dr. Arthur W. Hafner arrived as Dean of University Libraries in late 2002, he placed an emphasis on development of digital initiatives and committed resources to support that development.

After evaluating various digital content management solutions, we selected CONTENTdm to use in the development of our Digital Library Initiative (DLI), at a cost of about \$45,000. The DLI's name was changed later to Digital Media Repository to more accurately reflect the purpose, scope, and range of digital resources available in the project.

In order to support the DMR and other University Libraries' digital initiatives, an infrastructure was established, which included:

- Professional and staff positions created or repurposed from other positions to concentrate on the development of digital resources
- Acquisition of a broad range of equipment and technology purchased through the University Libraries' budget, grants, and auxiliary funds
- Appointment of a DMR Working Group to set, monitor, and address various issues
- A Digitization Center in the University Libraries to provide a centralized location for scanning and other digital work

The DMR Working Group, chaired by the Assistant Dean for Digital Initiatives and Special Collections, consists of representatives from Archives and Special Collections, Library Information and Technology Services, and Metadata and Digital Initiatives. Other Libraries' personnel participate as needed.

Metadata for all of the DMR's digital objects is created by personnel in the Libraries' Metadata and Digital Initiatives unit. It is mapped to and exportable by Dublin Core descriptors. The metadata is designed to meet or exceed national standards and Open Archive Initiative protocols for third party metadata harvesting.

Sustained Growth Through Grants and Partnerships

Ball State University has received national recognition as a continuing leader in emerging media and was named the nation's "Most Unwired Campus" in 2007 in an annual survey on wireless Internet access conducted by Intel and published in *U. S. News and World Report*.

As leaders in emerging technologies in information services, we have seen how the successful development of the DMR impacts others. Examples of successes with the DMR project include (1) receiving grant funding, (2) hosting conferences and workshops, and (3) developing new customizations with CONTENTdm to enhance collections.

The University Libraries has received \$245,415 in Library Services and Technology grants since 2001. Of these grants, five totaling \$121,360 have been to support the development of digital collections in the DMR since 2005, \$32,651 have been in technology grants, and one was a \$5,400 Innovative Library Program grant for a Second Life virtual library project. The remaining grants supported Interlibrary Loan services. (See libx.bsu.edu/DMRGrants.php for descriptions of three of the completed grant-funded DMR projects; the other two projects are still in development.)



Ball State Libraries' virtual references services are available in Second Life.

The LSTA digitization grants have allowed for the purchase of a variety of digitization equipment and hiring of part-time temporary personnel to work on digitization projects. Through grant funding, we acquired a mobile digitization unit to allow off-site digitizing of materials at partner institutions. We purchased a large book scanner to allow for digitizing ledgers and minutes books, and a large format scanner for digitizing historic newspapers. The most current grant allows the University Libraries to buy a larger format feed-scanner to digitize aerial plat maps as part of a collaborative project with a county government office.

Several of the grant-funded projects have involved collaboration with university, local, and regional partners to provide a broader range of digital resources. Examples of successful partnerships have included ones with the Henry County (Indiana) Historical Society, Muncie Public Library, Yorktown-Mount Pleasant Township (Indiana) Historical Alliance, *Muncie Times* newspaper, and the National Association of Interpretation.

Our reputation as a leader in developing digital resources and providing the campus community and beyond with the tools and technology needed for research and learning is recognized by other institutions. Other libraries have asked us to provide assistance with digital projects and have been included as a partner in their grant applications. For example, Anderson University received an LSTA grant for \$14,564 to digitize the *Gospel Trumpet*, a rare, early newspaper of the Church of God. The Ball State University Libraries received \$13,185 as a partner in the grant to provide TIF and PDF files and to perform optical character recognition to make the newspapers searchable. The Kokomo-Howard County (Indiana) Public Library asked the University Libraries to be a partner in an LSTA grant and paid from the grant funds to have the same process performed for their historic newspapers. The University Libraries became a paid partner in a McCormick Foundation grant received

by the Ball State History Department by digitizing, transcribing, and making available in the DMR video interviews with veterans of the U. S. Army's First Infantry Division.

The grant projects and the equipment acquired have enabled the University Libraries to create diverse formats and types of digital assets in the DMR, including audio, video, transcriptions, newspapers, scholarly journals, posters, maps, and photographs. Examples of the broad range of the 72 digital collections in the DMR, <http://libx.bsu.edu/azlist.php>, currently include:

- Architecture Images
- Ball State Student Artwork
- Ball State Student Films
- Ball State University Museum of Art Collection
- Chapbooks, 1812-1898
- Eleanor Roosevelt's 1959 Speech
- *Forum* Literary Journal
- French Revolution Pamphlets, 1789-1792
- Middletown Oral Histories (African-Americans; Jewish; Catholic; Labor Union Leaders; Economic Development)
- *Muncie Post-Democrat* Newspaper
- Muncie Sanborn Fire Insurance Maps
- *Muncie Times* (African-American Newspaper)
- NewsLink Indiana Videos
- *Physical Culture* Magazine
- Robert Kennedy's 1968 Ball State Speech Video, Audio, Transcript, and Photographs
- *Steinbeck Quarterly* Literary Journal
- U. S. Civil War Resources for East Central Indiana
- WIPB-TV Documentary Videos
- Works Progress Administration Miniature Furniture Collection
- World War I Posters
- World War II Films



RFK's speech can be heard and seen digitally via the DMR

Academic, Local and Global Usage

As is the intent of digitizing materials and making them available to people using the Internet, the DMR resources are useful to those locally and globally. Researchers from Germany, England, Canada, Australia, and other countries have contacted Archives and Special Collections about resources found in the DMR. Local, state, and regional use is significant as well. Local newspaper and television stations access the DMR regularly, then request rights to use materials for articles and documentaries.

We find that the national media are frequent users also! Muncie, Indiana, is known as “Middletown” from a seminal study and book that was written in the 1920s using Muncie as a representative American community, and there have been three other studies, hundreds of books and articles, and documentaries using Muncie as “Middletown.” Many resources in the DMR are used by media and researchers for works on “Middletown.” Historical Ku Klux Klan photographs and the anti-Klan newspaper *The Muncie Post-Democrat* in the DMR are often used by the national media and scholars for books and documentaries.

While many of these resources have been used in the past by media, researchers, and the public in analog form, their usage has increased since they are in digital format on the Internet through the DMR. In addition, the remote requests certainly have increased since people no longer have to visit Archives and Special Collections to access the materials due to the 24/7 access provided at their computers anywhere in the world.

Evaluating Overall Success of e-Resources

The ultimate value of any resource is in its use, functionality for usability, and how the technology aids others in meeting their objectives. An analysis of visits to the DMR during the seven month period of September 2008 and March 2009 showed 286,476 hits. In March 2009 alone, for example, there were 89,151 visits to different collections in the DMR.

Statistics alone, however, do not demonstrate the overall impact of the resource. Students in History, Architecture, Historical Preservation, English, Art, Sociology, Anthropology, Honors College, Education, and other classes use the digital resources for class assignment and projects. An Educational Foundations professor has his students in two classes each semester use the digital collections related to Muncie history for an immersive learning project involving the community schools. Students from Burriss High School and the Indiana Academy for Science, Mathematics, and Humanities have used items from the DMR in classes.

Overall Outcome of the Project

As a result of a highly successful LSTA grant project to digitize oral histories, the University Libraries received many inquiries from other academic libraries around the nation to share information and expertise on this innovative project.

Responding to that need, in 2007 the Libraries hosted a conference on *Can You Hear Me Now? Digitizing the Voices of the Past* that attracted 84 librarians, archivists, and other information technology professionals from 14 states to hear personnel from Ball State and other institutions share their experiences with digitizing audio. Ball State librarians and archivists have since been invited to give presentations on the topic of digitizing oral histories at several national conferences.

To illustrate another successful aspect of the development of the DMR, our Libraries’ personnel hosted conferences and workshops on digital issues. At the first digital conference, 64 librarians, archivists, information technology professionals, and others from around Indiana attended to learn about the use of CONTENTdm for managing digital content. The

conference was so successful that the University of Louisville's University Libraries asked our librarians to bring their "show on the road" and present it at a one-day conference at that institution.

In addition to presenting conferences, the University Libraries have offered smaller workshops on digital management topics, all of which have been well attended by librarians from throughout Indiana. Professionals associated in the field of library and information services rely on our expertise in digitization to advise them in areas from basic scanning to specific technical applications. Libraries' personnel also have visited other libraries such as Purdue University, Anderson University, and the Indiana State Library as consultants for digital projects.

Among the most significant successes of the University Libraries' DMR project is the well-received customizations to CONTENTdm that our personnel developed to meet special needs and improve access to digital collections. Examples of the customizations include:

- Embedding an audio player with transcripts in the oral histories collections so that researchers may listen to the audio and read a transcript simultaneously
- Creating a customized PowerPoint application in the Architecture Slide Collection for faculty and students to use with copyright restricted images that allows them to load full-size rather than thumb-nail images into slide presentations for educational purposes in the classroom
- Developing an authentication method for controlling access to images with limited use rights
- Implementing Zoomify in DMR collections to allow users to view, zoom, and pan detailed images in a quicker and more efficient manner
- Enhancing DMR collections by developing Google interactive maps for selected materials

Several academic libraries have contacted our personnel at the Ball State University Libraries for information on these customizations, and we have been more than willing to share these enhancement developments, which benefit students, researchers, and the public.

We receive positive feedback and input from users of the DMR, too. The use of U. S. Civil War materials in the DMR by a large group of eighth grade students provided an example of how digital resources can make history "come alive" in a learning environment. The students explored a digital collection of Civil War-era letters, diaries, and photographs from east central Indiana soldiers. They read letters discussing Lincoln's assassination and ones describing battles and marches. They examined the same documents in two formats: the actual documents and digital documents. Their teacher described the educational experience this way:

"It was unbelievable! The students were able to view primary source accounts of Abraham Lincoln's assassination with the touch of a computer key, making U.S. History come to life in the classroom. As an educator I can't wait to explore other key people and events displayed on the site and share this great source with the students."



Student sees soldier's Civil War letters up close while classmates reviewed the same items in digital format, thanks to the DMR collection.

Challenges or Barriers

One challenge in particular has been ongoing with the development of the DMR. The University Libraries wanted to offer access for Ball State students and faculty to higher resolution images in the Architecture Image Collection that could not be made available to the general user population because of copyright issues. This is a highly useful collection for our College of Architecture and Planning and other academic areas. We were able to implement access controls by using the local domain and credentials provided by the University for students and faculty. Because we have implemented a system with multi-versions of the images, this intellectual property issue continues to present challenges and opportunities for further development to meet the needs of all our users while retaining the integrity of the rights of the intellectual property owners.

Another challenge has been how to handle video assets. Currently, the University Libraries works with another unit on campus that digitizes video to produce streaming files for the DMR. While this cooperative arrangement has worked well, we are exploring options for acquiring the equipment and building the skills to bring that activity in-house to make video assets available in a timelier fashion and to handle the increased volume we are experiencing.

Protecting and securing intellectual property rights for digital assets in DMR collections is an ongoing concern. The University Libraries use authentication methods provided by the University as well as custom system access control processes to protect digital assets. While many of the digital objects are in the public domain, some use licenses for some assets fall under fair use guidelines, and others have use policies that fall under fair use and other copyright conditions.

Future Directions

The DMR serves as a solid foundation and excellent springboard for future digital initiatives by the University Libraries. The many successes of the DMR have positioned the Libraries well to advance a digital agenda. Future strategic directions and plans include development in the following areas:

- Virtual reality applications
- 3D modeling and data capture
- Multimedia, data management, and archiving
- Digital visual and oral history projects as part of a signature program
- Data acquisition technologies: expanding Cardinal Scholar as a data acquisition tool
- Development of an interface for mobile devices to access DMR collections
- E-Learning using resources of the DMR: online tutorials, lesson plans, workshops, and other outreach activities to align digital resources with curriculum, academic disciplines, instruction, and classroom use

- Development of digital media for co-modification of cultural heritage: transformation of cultural heritage artifacts into an educational commodity through digitization; packaging analog information and traditional paper-based documentation in digital format as a potential revenue generator

In addition to these objectives, the University Libraries are committed to the continued growth of the DMR. Currently, the Libraries make at least one digital collection available monthly, while also working on longer term projects. A DMR Public Interface Working Group meets regularly to plan and implement improvements to the usability and design of the DMR. A newly formed working group is investigating methods of increasing the visibility and ranking of DMR digital assets in search engines like Google and Yahoo!. The DMR collections are registered currently with OAIster, OpenDOAR, University of Illinois OAI-PMH Data Provider Registry, and Open Archives Initiative. The working group plan to submit information in the near future to other registries to increase visibility and accessibility.

Conclusion

The Ball State University Libraries continually strive to be a strategic part of each student's academic achievement and success plan by providing outstanding programs, efficient and effective services, and access to rich collections. Digital initiatives are a vital part of this objective. The DMR is a key component of the Libraries' goal to expand digital initiatives and facilitate development of emerging media opportunities for learning, research, and classroom enhancement. The DMR serves as the vehicle that makes the University Libraries a proactive producer of digital content.

The DMR, along with Cardinal Scholar Institutional Repository, the Digital Commons, the Ball State Virtual Press, and other library digital initiatives, advances the University Libraries goals to accomplish the following:

- Provide global access to an ever-widening range of digital resources to enhance and enrich learning, teaching, and research
- Increase the number and range of digital resources available for Ball State students and faculty
- Create signature digital collections to meet the diverse needs and expectations of the Ball State community and scholars around the world
- Promote and support the scholarly use of digital content by Ball State students and faculty

In today's high tech world, people expect fast and total access to information. Increasingly, digital content is allowing us to meet more fully that expectation. In less than four years, our decision to advance a digital agenda for the University Libraries has proven wise. Each day, the Ball State University Digital Media Repository is proving itself to be a highly successful resource developed by the University Libraries in the ongoing transition from print to digital resources to meet the expectations and information needs of the Ball State academic community and the continually growing international, global research community.

About the Authors

Personal Research Interests/Areas of Expertise:



Arthur W. Hafner, Ph.D., is a prolific author and speaker at seminars, workshops and local and regional meetings. He has authored several books and serves as editor of the Ball State University Libraries' monthly e-newsletter, *The Library Insider*. He is particularly interested in advancing the library as place, expanding resource sharing opportunities through consortia participation, and value creation through innovation, benchmarking, and mathematical modeling. His research interests include organizational improvement and strategic planning that is informed through tools such as marketing plans, gap analyses, SWOT analyses, and benefit-cost analyses. **AHafner@bsu.edu**, 765-285-5277, www.bsu.edu/libraries/ahafner/index.html.



John B. Straw has been in the academic library and archival profession for over 27 years and is currently Assistant Dean for Digital Initiatives and Special Collections at the Ball State University Libraries. He serves as project coordinator for the Digital Media Repository. His current areas of research and publication focus on digital development issues for libraries and archives and on collaboration in building digital resources. He has published articles in library and archival journals and presented many papers at professional conferences on archival and digital initiative topics. His most recent publication is a chapter on "Digital Partners: Collaborating to Build Digital Resources" in *Digital Scholarship* (Routledge, 2009). **JStraw@bsu.edu**, 765-285-5078.

Dr. Hafner and Mr. Straw have been co-principal investigators for five Library Services and Technology Act (LSTA) digitization grants.

Muncie, Indiana
April 30, 2009