

# **Digitization in the Real World**

**Lessons Learned from  
Small and Medium-Sized  
Digitization Projects**

Edited by

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# From Argentina to Zambia: Capturing the Digital A to Z's of a Child Art Collection

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## Abstract

The International Collection of Child Art, residing at Illinois State University's Milner Library, is a collection of artworks produced by children and adolescents across a range of cultures and time periods, primarily mid to late 20<sup>th</sup> century. This chapter discusses the collection's background and its role as a culturally expansive primary source. Information is provided about the Library Services and Technology Act grant funding awarded through the Illinois State Library to support the digitization project, *Imagine Illinois and Beyond: Celebrating Creativity Through the Eyes of Our Children!* The benefits and challenges of the digital conversion are discussed. Finally the chapter will look at alternate methods of image access, specifically audio description, to facilitate information discovery for viewers with a print disability such as vision impairment.

**Keywords:** Academic libraries, Art, Audio description, Children's art, Cultural heritage materials-digitization, Descriptive metadata, Grant funded projects, Illinois State Library, Institute of Museum and Library Services, Library materials-digitization, Metadata, Special collections, Visual resources.

## **Collection Background**

The International Collection of Child Art (ICCA) is a resource comprised of artworks created by children and adolescents from around the world. This cultural heritage collection reflects the visual expressions of young artists who capture themes from the fantastical to the familial and a myriad of themes that fall between. The collection was initiated more than forty years ago at Illinois State University (ISU), Normal, Illinois, and is now curated and administered by the University's library. This primary source includes over 8,600 accessioned children's artworks, from approximately 58 countries and cultures. The collection celebrates the creativity and innovative work produced by children with a multicultural perspective. The resource serves multiple audiences including students, academic scholars from across disciplines, and a wider public interested in viewing, learning about, and appreciating the imaginative vision that shapes a child's creative pursuits.

ISU's Milner Library acquired the ICCA in 2000 from the ISU School of Art, which inherited the resource following the closing of the University Museum in 1991. The collection had been stored in a classroom until the college could no longer accommodate it due to space constraints, lack of support staff, and less than optimal conditions for storing and maintaining this resource.

### **Virtual Shift: The Digital Project's Genesis**

University libraries holding collections with parallel cultural and historical value have grappled with similar challenges and opportunities presented by the digital conversion of a unique resource. Questions, both philosophical and practical, invite those embarking on a digital project to entertain a range of considerations perhaps not previously attached to the physical collection. Digitization of the Eastern North Carolina Postcard Collection project members recognized the ambiguous nature of assigning subject headings to a stand-alone image, relatively free of contextual information. The postcards in this collection usually were accompanied by text caption, but did not always have context provided by a monograph (Dragon,

2009). Colorado State University's project to digitize the University Historic Photographic Collection emphasized the collaborative process of converting a historic resource under a controlled timeline. The conversion involved a variety of project partners learning to speak each other's professional language including archivists, metadata librarians, and digital project managers (Hunter, Legg & Oehlerts, 2010).). A Latin American political poster collection, part of the University of New Mexico Libraries Center for Southwest Research and Special Collections, speaks to digitally documenting the transient nature of a resource by preserving ephemera such as posters. Similar to children's art, posters are not typically created to last through time, but document a specific and often meaningful moment in time situated at the edge of societal mainstream perspective (Stephenson, 2006). Clifford Lynch's discussion of digitizing cultural heritage materials comments broadly on the discovery aspect of placing resources in an open electronic environment where unexpected and at times serendipitous communities form around such a collection. Lynch posits it is the objective of a digital library, expansive in its capacity to "enable and facilitate implicit communication" to provide a construct for the community building that develops around a collection (Lynch, 2007).

The move to consider digitization of the ICCA was rooted in curricular needs to accommodate a generation of users already vested in electronic access. By virtue of the resource's sheer size, aging condition, and location, physical access is limited. The collection of two dimensional artworks is stored in a multi-use university warehouse that also serves as the library's storage site for a collection of less frequently used volumes and is the home of University Archives. The warehouse is off campus and largely off limits to the public. Although slides of the artworks were created in the 1970s to support teaching and study of the collection, the analog format was no longer a viable option to support use of the collection in the 21<sup>st</sup> century academic environment. Included in the collection are sixteen thematic traveling exhibits that have been displayed widely and have garnered attention for the resource. Several hundred of the slides, selected from the collection's traveling exhibits, were converted to

digital format in 2003, but overall the condition and quality of the slides was questionable and each image required color correction. The conversion of this small sample to a digital format brought attention to the collection when the images were mounted on the ICCA website and provided the spark that ignited the pursuit of funding to digitize the collection. Art, art education, English, and children's literature faculty actively using the collection in classes were supportive advocates for moving the resource into a fully accessible digital format.

Setting the stage for digital conversion in the fiscally constrained environment of a public university requires strategic use of limited funding for library resources and creative thinking to move forward with a digitization project. Milner Library began researching grant options to move forward with the digital conversion of the ICCA in response to faculty feedback.

The value of a grant award is not limited to the funding awarded to support a project. Significant gains are gleaned from a successful external grant award including the opportunity to work outside your own institution with the awarding agency, related publicity, promotion, and recognition of a collection. The external recognition has the potential to bring additional funding as a project's status is heightened, providing a scaffolding effect on which to build and enhance the project and its outcomes. Additionally, faculty librarians working towards tenure and promotion are keenly aware of the professional distinction associated with the potential of a funded competitive external grant and the implications for building a record of scholarly and creative activity.

Grant awards also provide resources to fund hiring student assistants who collaborate and contribute to a project's success. In an academic environment a grant funded library digitization project can advance a student's academic career by affording opportunities to work on the multiple facets afforded by such a project. Grant funded projects, such as the proposed digitization of the ICCA, offer a wide range of opportunities for students from a variety of academic disciplines, testing and developing students' strength as a researcher

in art, art history, history, foreign language and culture. Students who have worked with the ICCA come from a variety of majors: art, art history, arts technology, English, and language. A student can also learn about time and project management skills and supporting the goals and objectives of a project through their own contributions.

Writing a successful grant proposal reflects a commitment of time, thought, and energy while providing an opportunity to compete and be recognized through the external agency awarding the grants. The Illinois State Library's (ISL) Library Services and Technology Act (LSTA) grant program, using funding made possible by a grant from the Institute of Museum and Library Services (IMLS), appeared to be a fitting choice for a proposal submission. The IMLS is the main provider of federal support for museums and libraries in the United States working with state and local organizations, its primary mission to strengthen the capacity for these institutions to link people, information, and ideas in a meaningful way. The fiscal year 2009 LSTA grant offerings by the ISL were available in three categories: technology programs and services, resource sharing, and digital imaging projects. The digital imaging category suited the needs for the potential ICCA digitization project.

The ISL's LSTA grant application and review process is competitive and requires the principal investigator to make the case for the value of the collection being considered for funding. Grant reviewers—experienced with digitization projects, past principal investigators, or project directors—evaluate proposals using a review rubric. The rubric is made available to grant writers and offers clear language about components of the grant application: project description, action plan, target audience, outcomes, timetable, personnel, and project sustainability (LSTA Grant Review Criteria, 2010). The ISL provides further support to grant writers by hosting workshops designed specifically for digital imaging projects prior to the grant proposal deadline. The workshops cover planning the grant project, elements of the proposal, and the evaluation rubric.

Developing the grant proposal afforded an opportunity to closely examine the ICCA's forty year history at ISU and to justify the

significance of the collection in terms of how it related to historical and cultural trends on a state, national and international level. The resource, initiated by ISU's former University Museum Director, Dr. F. Louis Hoover, began with a collection of over 300 artworks gathered from the children of Illinois. Artworks from North American countries represent 55% of the current collection. Although ultimately international in scope, the seeds for the collection were sewn with creative works by the children of Illinois. With support from the University, the collection's scope grew under ISU art education professor Dr. Barry Moore (now emeritus), including artworks from children and adolescents of six continents, Antarctica being the only continent not represented. Relationship building and networking with international organizations such as the Christian Children's Fund reflected the University's longstanding record of supporting global engagement through activities including study abroad programs for students and welcoming international students to the ISU community.

The LSTA grant application required detailed attention to planning the ICCA digital conversion including proposed timelines, personnel, and supporting resources. The project planning guidelines suggested through the proposal process largely reflect the detailed information for the digitization of cultural heritage materials thoroughly outlined in the Digitization Activities Project Planning and Management Outline document disseminated by the U.S. National Archives and Records Administration (Still Image Working Group, 2009).

Milner Library's Digitization Center, established in 2005 to primarily provide for the digitization needs of the University community, proved the logical choice for the digitization of the ICCA. The Center, equipped to digitize a variety of analog formats, provided contractual services for successful projects funded by LSTA grants awarded through the ISL: the *Towanda History Project*, a partnership between the Towanda District Library and Historical Society, and the *Native American Collection*, held at the McLean County Museum of History. These projects established the Center's reputation for partnering on LSTA grant funded digitization projects. Additionally, Milner Library and ISU's School of Art work collaboratively with the

Center to produce an image database, ILSTUDIA, providing images for art, art history, design, and visual culture hosted on the library's CONTENTdm server. Further experience was gained with the digitization of two dimensional artworks when the Center digitized more than 250 prints from the New Editions Workshop project funded by the School of Art.

The grant proposal emphasized the collection's value to provide primary source materials across disciplines including art, history, social sciences, education, English and psychology. The educational value of the collection was already established by the documented study and use of the resource by researchers (ICCA: Research, 2008). The digitized collection was not meant to replace the original artworks, but to facilitate access to a larger audience. Titled *Imagine Illinois and Beyond: Celebrating Creativity Through the Eyes of Our Children!* the grant proposal was submitted in May 2008 to the ISL's LSTA digital imaging grant program. In August the total amount requested, \$85,934.00 was awarded for the project to digitize 8,600 accessioned pieces in the ICCA. The grant cycle began October 1, 2008 with all funds to be expended by June 30<sup>th</sup> 2009.

### **Constructing the Project**

The original grant proposal was submitted, approved, and awarded, allotting the majority of the funding for contractual services from the Digitization Center at Milner Library. Although the grant proposal was reviewed and approved at all required levels at ISU, the University's Grants Accounting and Comptroller's Office requested a budget amendment be filed after the grant was awarded, belatedly noting the Digitization Center named for contractual services could not be designated as a separate agency. An amendment to the grant budget needed to be filed to reflect expenditures to support the project. The budget amendment was submitted and approved by the University and the State Library. It was an unexpected hurdle to cross and created delays hiring grant funded personnel and ordering equipment. Additional complications were created by the reorganization of the of the Digitization Center, just weeks prior to the grant awards being

announced. The director of the Digitization Center was reassigned to work full time on a separate external grant funded project, essentially leaving the ICCA project without a project director and the Center without a director. Without prior notice or planned options for time release from academic workload, the principal investigator took on the additional responsibility of project director for the digitization project. As author of the grant, the principal investigator had drafted the project planning that was already in place and the funded grant moved forward.

### **Developing the Data**

When Milner Library began administering the ICCA, the resource came with a textual database holding museum generated information, as available, about the artworks including object identifiers, titles of the pieces, date created, artist gender, artist age, artist location, provenance, materials, dimensions and subject headings. The textual database laid the groundwork for collaboratively developing metadata schema, mapping, and standards used in the digital image database. Due to personnel turnover and position reassignments three different metadata librarians worked on the project during the planning phase of the grant, through the grant cycle, and after the grant cycle came to an end. The library supported filling the vacated positions so that metadata development continued to progress.

Initially, guidelines for the LSTA grant required funded projects to upload their digital files and related metadata into the Illinois Digital Archives for dissemination. Milner Library was already using CONTENTdm to manage several other digital collections, and it is the choice of the Consortium of Academic and Research Libraries in Illinois. CONTENTdm has proven to be a reliable data storage solution for a variety of formats including images, documents, and audio. This is not a small consideration for an institution, not only due to cost, but also to preserving cultural heritage collections with concerns for moving the digital data attached to these resources reliably and robustly into the future (Van Den Bosch, Van Den Herik, & Doorenbosch, 2009).

Vocabulary for the subject headings was most closely aligned with the Getty Art and Architecture Thesaurus (AAT). The project team continues to add and adjust subject headings as needed using the ATT as a guide, although not all terms are included in the thesaurus. For example, the terms “angels” and “ghosts” are excluded in AAT but are useful terms to apply in a children’s art collection. Metadata for the collection was scrutinized closely after the images and information were matched and viewable simultaneously. Gaps in information were revealed. Descriptive metadata, such as titles for the artworks, were occasionally truncated due to the migration of data from one database format to another. This was an irregular occurrence which was remedied by consulting the original records or the artwork to complete the information.

A related grant was written concurrently with the LSTA proposal requesting funding from the University’s Research Grant program to support additional enhancement and development of descriptive metadata fields for the collection. For example, as the collection grew, accompanying artists’ comments were documented on old key punch cards, sometimes typed, sometimes handwritten, in the 1970s and 1980s by staff from the University Museum. The paper records, stored with the collection in the offsite library storage facility, provided no viable method of access for researchers. The awarded grant provided funds to hire a student who reviewed all paper records and transcribed more than 600 comments into a spreadsheet. Providing access to accompanying artists’ commentary in addition to the images themselves provides researchers enhanced primary source material.

When paired with the image of the artwork, the accompanying artist commentary enriches the descriptive metadata available to users and also potentially provides illuminating context for the image (Figure CHILD-1). The commentary from the young artists had not been made fully available in an accessible format to users in the past. This same grant also partially funded student assistants to transcribe and translate a collection of post World War II Germany artworks donated to the ICCA in the 1970s.

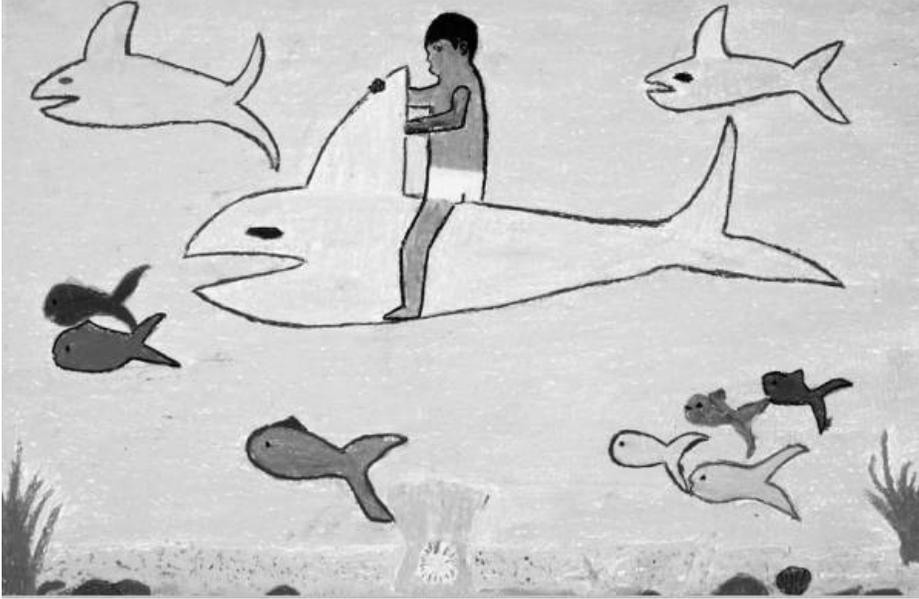


Figure CHILD-1. *To Live Under the Sea*, boy, 11 years old, Philippines, 1976. © International Collection of Child Art, Milner Library, Illinois State University, Normal, Illinois. Used with permission. Artist comments: "I wish to be friendly to all fishes under the sea so I could see the beauty and surroundings under the sea. I wish to stay forever under the sea. I will ride on the back of the shark. I will help the poor people and I will give them pearls."

After the LSTA grant was fulfilled, a University Research Grant was awarded to support an ongoing project to write concise—one to two sentence—descriptions for the digital images from the ICCA. Descriptions were a missing piece in the information provided by the textual database. The accompanying descriptions will serve as an additional path to the end user, enhancing access and discovery. By Dublin Core definition, the *description* field provides a textual description for an image, such as a piece of children's artwork in this collection (Dublin Core, 2009). End-users, including students, educators, and researchers, will benefit from having additional access points available as supporting and valuable descriptive metadata for the digital collection of multicultural children's artworks. Although the majority of the 8,600 artworks converted under the LSTA digitization project have at least one term in the *subject* field for

descriptive metadata, no information is available in the *description* field. The lack of information in this field limits the end-user's capacity to fully explore the resource for the purposes of teaching, learning, and research.

The library's digital imaging specialists captured images of the artworks with the center's Betterlight Super 8K-HS camera working on a Tarsia 40 x 60 inch vacuum table which accommodated most of the pieces. Required specifications for scanning the artwork were provided by the State Library and were compatible with other digital projects the library had developed. The image files have an uncompressed TIFF master file (300 PPI), compressed JPEG image files (300 PPI), and a thumbnail GIF image (72 PPI). The digital imaging specialists and project student assistants resized and edited image files using Adobe Photoshop CS2.

### **The Road More and Less Traveled**

The Digitization Center's location required the children's artwork to be transported from the university warehouse approximately three miles off campus to the library. Over the course of the grant cycle, approximately forty weeks, weekly trips were made to move artwork to the library and then return the artwork to the warehouse.

Despite being located in the Midwest, climate never played a significant role in transporting the artwork, not a small consideration. A vehicle was able to drive into the warehouse for pickups and deposits to the library were delivered at a service door with a large overhang. The two dimensional works were transported in portfolios designed and crafted by the library's preservation staff. Each portfolio held 25-50 pieces depending on the size and material from which the artworks were made.

In the last months of the grant cycle the project team began processing the traveling exhibits, about 500 artworks, framed and stored in shipping crates. These pieces required extra time and attention because many of the pieces had to be unframed, digitized, and then reframed. The exhibits posed more of a challenge for transporting back and forth because transportation had to be

arranged in advance for University facilities staff to deliver the crates to the library and then return them to the warehouse. The process of transporting, uncrating, digitizing, reframing, general handling, and re-crating the artworks was more time consuming than anticipated.

Library preservation staff worked with the project team from the planning phase and throughout the project cycle helping to identify workable solutions to related preservation and conservation issues. The overall condition of the artwork in the collection is fair, considering the age of the collection, some artworks more than fifty years old, and the materials used for children's artwork, typically not archival quality paper for example. A potential problem considered, during the planning phase, was the possibility that some of the artwork might have preservation or conservation concerns that would need attention. Working collaboratively with the library's preservation staff, the digitization staff handling the artwork created a rubric of potential preservation concerns and documented observations made about the condition of the artworks as each piece was handled that was unusual or in need of attention. As a result, the collection now has a record describing the condition of each piece that was marked for conservation attention. For example, several hundred of the artworks were in acidic mat board frames that necessitated removal as the pieces were handled. Excessive amounts of tape made this a more tedious, and time consuming, process than anticipated. Typical notes documented included: some water damage, tacky oil paint, fragile materials, acidic paper, tears, glue, tape etc. The digitization staff documented the preservation concerns throughout the process and consulted closely with preservation staff to make bridge fixes as needed. This documentation will be used to pursue grant funding for conservation and preservation of the artworks sometime in the future.

### **Miscellaneous Malfunctions and Positive Project Outcomes**

Unanticipated technical problems can and will happen throughout a project period. Alternatively the positive outcomes provide an overpowering counterbalance.

Scanning came to a halt for several days just one month into the LSTA project, when the Betterlight Super 8K-HS camera used to capture the artwork malfunctioned and had to be shipped to California for repair. The library's main server containing all of the project image files went completely down toward the end of the grant cycle resulting in six work days that proved difficult for processing, digitizing, and scanning the artwork. The project team adapted, saving files to the work station hard drives for temporary storage, until the servers were restored. After a change in library network configuration, the digitization center staff encountered an unexpected increase in the amount of time it was taking to open a TIFF file from the server. Moving image files between servers or from the server to a local hard drive was slowed significantly.

Positive outcomes of the ICCA grant project and the increased level of digitization activity directly and indirectly influenced and contributed to changes in the Digitization Center. Repeated bending and lifting at the low level of the pre-fabricated scanning bed created ergonomic concerns. A frame to raise the scanner bed was designed and fabricated, raising the scanning bed to 30 inches thus improving the ergonomics of the setup and creating a more comfortable workflow. The library committed to supporting additional space by moving equipment and personnel from a cramped, shared area (which staff had uncomplainingly made functional) to a larger work space dedicated solely to the needs of the Digitization Center. The move also solved the slowed time to manipulate image files as the network ports and servers were upgraded from one hundred megabyte Ethernet to one gigabyte Ethernet in the renovated space. Staff increased as a second digital imaging specialist hired under the LSTA grant continued employment full time after the grant cycle ended. Two ISU students from the arts technology program were hired to work part time on the LSTA project. They assisted with scanning artwork, resizing images, and helped transport the artwork from the warehouse to the digitization center.

## **Areas of Growth**

In 2007 Illinois Public Act 095-0307 altered the fabric of State awarded digitization grants. The newly enacted Illinois Information Technology Accessibility Act (IITAA) requires the preparation of audio descriptions to accompany digital images to enhance access for individuals with a print disability such as vision impairment. Due to the incongruous timeline of the fiscal year 2009 grant awards and the enactment of the IITAA, FY09 grant recipients, Milner Library included, were only asked to submit audio files to accompany twelve digital images. Funded applications henceforth are required to prepare audio descriptions for 100% of digital images. After attending an audio description (AD) workshop hosted by the Alliance Library System, the project director became intrigued by the concept of providing an alternate source of access to a visual resource. A small grant from the University was secured and provided seed money to hire a student assistant and begin researching the implications and mechanics of audio describing a digital image collection. Using the ICCA digital collection as a beta model, a pilot project has been initiated by the project director with the primary objective to investigate the challenging aspects of developing audio descriptions for an image collection.

Audio description is defined as a “narrative technique that makes visual images more accessible to blind and low-vision people by producing audible written descriptions of non-verbal visual information” such as the digital images in the ICCA. The history of AD is rooted in the performing arts and dates back to the 1960s when a vision impaired employee from the United States Department of Education suggested preparing audio descriptions for films as well as the captioning already being provided for hearing impaired individuals. The idea was not supported however until the 1980s when advocates gathered and initiated an ongoing program sponsored by the Washington Ear, a group recording newspaper and magazine articles for the vision impaired and continued by providing descriptions for performing arts venues (Snyder, 2008).

Employing basic principles for preparing AD suggested by the workshop, work began on writing transcripts for a selected number of images from the ICCA. The transcripts are brief, providing up to a one to two minute description averaging 200 words. Descriptive language, not analysis, attempts to provide a listener with a concise understanding of the image. The basic elements for the description use an introduction to the image, identify the primary theme or elements, and then describe in detail what is featured in the image (Figure CHILD-2).



Figure CHILD-2. *A Beautiful Afternoon with Birds*. boy, 12 years old, Vietnam, 1972. © International Collection of Child Art, Milner Library, Illinois State University, Normal, Illinois. Used with permission.

**Audio Transcript:** This artwork, a painting titled *A Beautiful Afternoon with Birds Returning to Nests* was created by a 12-year-old boy from Vietnam in 1972. The centerpiece of this painting—composed primarily with blue hues—

is two birds flying across a lightly speckled sapphire blue sky. A larger bird is painted in the upper left side of the artwork closely followed by a smaller and similarly painted bird. The beaks have only been suggested by a jagged line and the visible eye of each bird is a simple white dot. The avian bodies are sleek and graceful with plumage that subtly moves from light to deep turquoise. The birds blend closely with their inky blue-black shadows emphasizing their forked tail feathers, reminiscent of long fluttering coat-tails. This image is published by Milner Library at Illinois State University as part of the International Collection of Child Art Digital Collection.

Approaches to uncovering resources and options for developing, writing, and recording narratives for images, grant funding, and working with units across the university are being explored. An option being initiated is building collaborative partnerships with teaching faculty to integrate the creation of audio description for digital images in the child art collection, into course curricula in related disciplines. The outcome of the pilot project research, still in the beginning stages, will inform future digital imaging initiatives integrating audio descriptions with digital images. The children's artwork presents a captivating invitation to construct an accessible and meaningful representation of an image with language.

## **Conclusion**

When discussion about digitizing the ICCA began the motivating drive behind the idea was to provide improved access to support teaching, learning, and research. With approximately 97% of the collection digitized at the time of this writing, the ultimate objective of the project has been fulfilled, although outcomes have expanded and were influenced by a fluctuating climate of change that involved personnel, equipment, and content (ICCA Digital Collection, 2009). Because change is a constant in this environment a key component of a digitization project is a creative, cohesive, and flexible project team invested in the project. It is impossible to deny the overarching appeal this collection of children's art extends to all, including the staff and faculty across multiple library units who contributed to and supported the project. From a pedagogical perspective, the project provided an opportunity to engage numerous ISU students who contributed their

time and talents to multiple aspects of the process including collection maintenance, digitization skills, translation of artworks, conservation work, and transcription of metadata. The students who worked with the collection were thrilled to have the experience of working with primary source materials and were quite excited to be a part of the process that brought the collection to digital life. In the academic environment, and especially at ISU, which prides itself at placing the learner at the heart of teaching and scholarship, the level of student engagement was an unanticipated and truly positive outcome.

The project will continue with the ongoing refinement and enhancement of descriptive metadata, including expanded subject headings and description development. As the collection's identity shifts to the virtual, the responsibility to assure optimum access and searchability for continued use and research of this resource will remain at the forefront of its mission. Broadening the scope of access for a range of users by providing audio access will continue to be explored as the project moves into classrooms and provides collaborative opportunities for students to continue to contribute in meaningful ways to the project. The library will consider the forward direction other cultural heritage collections are moving in the virtual world (Ronchi, 2009). Embracing hypermedia to push the boundaries of the collection through virtual storytelling, gallery exhibits, and reconstructing the creative, historic, and cultural environment of a child artist are all possibilities. Ultimately this will serve the goal of remaining a meaningful and vibrant teaching and learning collection that will continue to inspire users researching the visual expressions of children.

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