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**KEY SUCCESS FACTORS FOR MUSEUM-
UNIVERSITY-PUBLIC SCHOOL PARTNERSHIPS**

Benjamin Lorch, Lead Author

Julia Brazas, Co-author

Christie Thomas, Co-author

The University of Chicago, The United States of America

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Abstract

This paper describes the structure, methods and key success factors of the Chicago Public Schools | University of Chicago Internet Project (CUIP), Chicago WebDocent and eCUIP: The Digital Library Project. Over the past seven years, the University of Chicago has worked closely with 29 Chicago Public Schools on the city's mid-South Side, seven large museums and libraries and Chicago Public Schools leadership to continually improve the use of computers and the Internet as teaching and learning tools. Since its inception the program and its participants, large, complex educational institutions, have made large strides toward creating a stronger "computer culture" among students, teachers and administrators in the schools.

Included is information on the overall structure of the CUIP initiative and partnership, the process of Chicago WebDocent curriculum production and the process of Digital Library content provision. We outline the success factors needed to facilitate such museum-university-public school collaborations. We describe these programs, which employ computers, the Internet and the city's museum holdings as teaching tools in an attempt to remediate the problems which plague the Chicago schools, a system of mainly poor, minority and under-performing public institutions.

Specific school improvements as measured with statistics are not presented here but rather an illumination of the nature of the CUIP approach is presented so that others may benefit from the lessons we have learned in Chicago.

Key Words : Educational Outreach, Institutional Partnerships, Online Curricula, Digital Library, Collaboration, Public School, Learning Technologies

The Plan of the Present Work

A Brief History of CUIP

Mission of CUIP

Profile of the CUIP Schools and Chicago's Mid-South Side

Descriptions of major CUIP initiatives including, key success factors and implications for teaching and learning strategies: Principals' Advisory on Schools Management;

Infrastructure and Equipment Provision; Technical Support; Training and Skills Development and; Learning Technologies Classroom Integration. Information on the CUIP program serves as crucial background information for later discussion of the Chicago Web Docent Program and eCUIP: The Digital Library.

Programmatic specifics CUIP's two curricular outreach and partnership initiatives:

Chicago WebDocent

eCUIP: The Digital Library Project

Organizational and Educational Approaches of the Chicago Public Schools | University of Chicago Internet Project, Chicago WebDocent and eCUIP: The Digital Library – Implications for Large Institutional Partnerships in Education

Appendixes

A Brief History of CUIP

<http://cuip.net>

In 1997, the Chicago Public Schools' Department of Learning Technologies and the University of Chicago's Office of Community Affairs formed a partnership seeking to improve the use of computers in the classrooms, labs and libraries of a cluster of public schools on Chicago's South Side. The Chicago Public Schools | University of Chicago Internet Project (CUIP) was founded under the direction of University of Chicago Horace B Horton Professor of Astronomy and Astrophysics Don York, Chicago Public Schools Director of Learning Technologies, Richard White, and University of Chicago Director of Neighborhood Relations, Duell Richardson. Upon its inception CUIP embarked on a 5-year plan to work with principals, teachers, tech-coordinators, students and Chicago Public School officials to improve classroom instruction via the aid of computers and the Internet. CUIP was founded to foster a self-sustainable computer culture in the inner-city public schools attended primarily African-American students from low-income families. The goal was to afford the students the same opportunities offered by more wealthy suburban school districts.

Over several years, the program has grown to include as many as 29 public schools situated in three community areas that around the University, not by previous success in technology. Currently, in 2003, a staff of 16 full-time-equivalent employees and several

institutional partners are dedicated to the CUIP mission. The average annual budget for CUIP is \$1Million in direct support and in-kind contributions.

The Mission and Five Initiatives of CUIP Support

The mission of CUIP is: To enhance teaching and learning in the 29 CUIP schools via the use of Internet and other computer technologies through five sustainable initiatives: Principals' Advisory on Schools Management, Infrastructure and Equipment Provision, Infrastructure and Systems Support, Training and Skills Development and, Learning Technologies Classroom Integration.

Principals' Advisory on Schools Management

Strong leadership and vision among school principals is requisite if advancement in learning technologies is to occur at the local school level. Principals set the tone and expectations for schools' success or stagnation. Recognizing this fact, CUIP works closely with our partner principals to listen to their challenges and concerns regarding technology while presenting options for advancement; making recommendations in regard to equipment, staffing and programs and; offering the professional development and technical support services of CUIP. Our goal in working with principals is to inform them on technology issues, create a cadre of local school leaders and instill them with knowledge and resources to support their lead role in school technology integration. Specially, we work with principals to create a viable technology integration plan, support CUIP professional development initiatives and isolate monies in their budget to purchase equipment.

The methods by which CUIP achieved these goals were many. To begin, CUIP Directors Don York and Duell Richardson and Managing Director Benjamin Lorch made regular visits to the principals at their schools to consult with them on their needs, get a sense of the status of technology initiatives and, make recommendations. These on-site visits were coupled with a series of principals' quarterly retreats held on the campus of the University of Chicago at the Quadrangle Club, a quasi-faculty club.

CUIP Principals' retreats generally begin in the morning with a breakfast service following by a morning of discussion and presentations concluded by a luncheon prepared

on site and served by Quadrangle Club staff. Retreats are held in a large wood paneled room with large carpets and views out onto the University's gothic campus. Formal agendas and themes were introduced to keep the meetings focused and bring a sense of concentration and goal-orientation. The setting of these meeting, the provision meals emboldened principals during a day away from the many demands of school management and allowed the principals focus on issues of technology. Our sustained success through the years was a result of these meetings wherein relationships were formed and the underlying trust crucial to partnership success in this context was established. In 2002-2003 CUIP began informally calling the Principals' Retreats, "Principals' Advances" in the spirit of progress and further growth.

Also throughout the school year and interspersed between the retreats, Managing Director Benjamin Lorch and members of his staff consult with principals in their offices to coordinate technology training sessions, plan special projects and organize school-wide technology fairs. Three instruments developed by CUIP are at the center of our efforts: the CUIP Teacher Technology Self-Assessment and the CUIP School Technology Footprints and CUIP Technology Profiles.

The CUIP Technology Self-Assessment is a skills evaluation tool developed by CUIP to better target training and project support work among teachers. This questionnaire focuses on teachers' strengths and does not rely on direct performance and skills testing, as the Chicago Public Schools do throughout the city. The individual and compiled results of the Technology Self-Assessment are shared only with the principal of the school at which the survey was deployed as a way of evaluating the technology readiness of their teachers. CUIP uses the results to form groups of common need and interest for in-school training sessions.

CUIP School Technology Footprints provide a comprehensive overview of crucial information and statistics related to technology integration. In the summer of 2000, two years after the inception of the program and after initial ties had been formed with principals, data was collected through a series of intensive one-on-one interviews with principals held at on the campus of the University of Chicago. CUIP School Technology Footprints track data required to analyze individual school needs as well as aggregate data

that helped set the overall agenda and approach for the program. The footprints data was closely guarded. Information on an individual school is only shared with the principal of that school and aggregate data on the schools has only presented publicly with the schools listed pseudonymously.

The CUIP Technology School Profiles are an outgrowth of the footprints that measure many of the same metrics but are linked to existing CUIP training and development initiatives. While the footprints served as a survey of the ground truth on technology, the CUIP Technology School Profiles are structured as working documents developed for principals to help guide programs in the schools and track further progress beyond the time of CUIP's involvement.

CUIP also worked closely with a set of select schools within the cluster on the implementation of electronic school management systems. These software-based tools record grades, track attendance and perform other day-to-day administrative requirements. Pilot efforts in this realm were successful in some schools but did not come without a considerable amount of effort and frustration in their implementation. The successful introduction of these systems is slated for future work in the schools.

As a result of their partnership with CUIP all principals are versed in the issues surrounding learning technologies and have a strong sense of the planning, management and budgetary requirements involved in classroom integration.

Infrastructure & Equipment Provision

Crucial to the accomplishment of CUIP goals is pervasive access to Internet-connected computers. Two major initiatives in this area were taken up to make access to computers in classrooms, libraries and labs. First, Don York worked with CPS officials to have all 29 of the CUIP school buildings wired to the Internet on the Chicago Public Schools' Wide Area Network with eight hardwired access points in each classroom. In all cases, under strict Chicago building codes, electrical power had to be distributed to each Internet "drop." Many buildings also required full electrical service upgrades. All this work involved over 70 contracts at a cost to the Chicago Public Schools of 26 million dollars.

Over three years CUIP monitored this work by holding regular breakfast meetings with Chicago Public School officials responsible for ensuring that the work was being done on time and to specification. CUIP passed crucial information from these meetings onto principals and encouraged them to keep a close eye on the progress of the contractors. During the summer of 2001 CUIP convened Chicago Public School officials and representatives of the companies contracted to perform the wiring work for walkthroughs of the schools. The goal of these sessions was to check first-hand on the progress of the work and ensure that the jobs get done properly and in short order.

Meanwhile CUIP worked with local computer vendors to provide refurbished computers for sale to and use in the partner schools. Machines donated by businesses in Chicagoland were renewed with any necessary hardware and a fresh installation of Windows software before being placed in the schools for a nominal fee to the schools. Over time a city-wide effort named Computers for Schools was developed by Willie Cade, a Chicago entrepreneur dedicated to school improvement. Computers for Schools makes classroom-ready computers to CUIP schools and all Chicago Public Schools at a low cost.

Training & Skills Development

Central to the mission of CUIP is the preparation of teachers to integrate technology into their everyday teaching and learning. Before teachers can begin to envision how computers and the Internet can assist in the classroom they must first be comfortable with and versed in computer skills. Since the inception of CUIP a group of graduates with masters degrees have been employed on a full time basis to train teachers in their schools to train them in computer and Internet skills. These staff members are known as the Technical Resource Advisors (or TRAs). They serve as technology teachers, coaches, dispute moderators within schools over “turf” among teachers and increasingly liaise with technology coordinators and principals to ensure that CUIP efforts are supported and structured for success. During the 2002-2003 school year CUIP employed three full-time TRAs and one half-time TRA.

The TRAs are also joined by a group of 30 undergraduate and graduate students that work with CUIP on a part time basis at around eight hours a week. These students are part of Duell Richardson's Neighborhood School Program (NSP) which traditionally supplies tutors to local school to partner with teachers. There are two groups of Neighborhood School Program students that work with CUIP, 15 NSP project support staff and 15 NSP technical support staff.

The goal of both the TRA and NSP staff is to ensure that all teachers are knowledgeable, confident and continuously improving their underlying skills necessary to integrate technology into teaching and learning. CUIP has not set a standard for all teachers to achieve but rather, we work to encourage teachers to take their skills and experience to a new level each year. Finding time to concentrate on making such progress can be very difficult for the teachers so CUIP works with them on-site in their schools during their free periods that are usually dedicated to teaching preparation. In the early years of CUIP TRAs worked exclusively in a one-on-one fashion with interested teachers to put them at ease and remove any awkward embarrassment they may have felt about their low technology skill levels. This approach was also useful because it allowed the TRAs to enter the schools on the basis of forming close mentoring relationships with the teachers with whom they worked. This not only formed the basis for training progress they made but also allowed the TRAs to become increasingly connected to the school as a trusted partner. However, one-on-one training was often slow and ineffective. Sometimes teachers would neglect their appointments and there were many instances wherein Internet connectivity had not yet been established to the school and/or access to working computers was limited.

Over time CUIP refined its service delivery model by shifting away from one-on-one sessions to group training with the introduction of the CUIP Technology Self Assessment. This process allowed us to form groups of teachers with common needs and focus on project-oriented outcomes. We asked that school technology coordinators become involved in the scheduling of these sessions which lead to greater teacher and school buy-in.

In addition to the in-school professional development efforts of CUIP, each summer The Web Institute for Teachers (WIT) offers teachers an intensive four week training program (80 hours) on the campus of the University of Chicago and in surrounding CUIP school computer labs. The goal of WIT is to help teachers to utilize existing web resources, make their own curriculum webs, and thereby improve teaching and learning. In WIT, teachers work on their classroom technology skills and develop online curricula for use in the coming school year. Along side teachers trained as instructors, TRAs mentor teachers during these sessions and later follow-up on this work to help implement WIT projects in the classroom setting. Since 1997, over 282 CUIP teachers have been trained in WIT. This is just over $\frac{1}{3}$ of all CUIP teachers. The learning technologies expertise developed in WIT provides a cornerstone in the foundation of CUIP's success and progress.

As a result of CUIP efforts, approximately, 65% of teachers are trained at preliminary technology skill levels, 35% are prepared and confident in their ability to effectively integrate technology into their classroom teaching.

Technical Support

Central to the successful integration of computers and the Internet into teaching and learning is a solid foundation of technical support. Both novice and experienced teachers quickly become frustrated and dissuaded from using technology in their classrooms and labs if systems, networks and peripherals are not robustly maintained and operable. As a result, it has been the goal of CUIP to ensure that each school maintains in-house or contracted service for the maintenance and repair of infrastructure and systems to provide continuous student/teacher access to learning technologies.

Mitchell Marks is CUIP's full-time technology coordinator. A graduate of the University's computer science program, Mitch is fully versed in the technical issues that face the schools and holds strong relationships with the schools' technology coordinators. Mitch spends his time making in-school visits, replying with alacrity to email queries and maintaining the CUIP servers which host our web presence and email services offered to all CUIP teachers. In addition, Mitch works closely with schools' technologies to implement school-wide learning systems such as Accelerated Reader and other server based systems that require networked environments and student performance profiles. Mitch is a thorough researcher and the technical brain trust of CUIP.

Mitch's efforts are augmented by a corps of 12-15 Neighborhood Schools Program Technical Support Partners. These students of the college and graduate schools work in assigned schools on an 8 hour per week basis to trouble shoot computers, maintain servers and fix networking problems. It should also be noted that CUIP Technology Resource Advisors (TRAs) also, by default, end up performing a great deal of technical support and troubleshooting as a result of being on the "frontlines" of computer training while working with teachers in the schools. CUIP has encouraged and supported the establishment of student computer clubs to foster students' interest while maintaining school computers. This effort has been most successful in one of the 5 CUIP high schools.

One of CUIP's major accomplishments has been to work with principals to identify and support the role of Technology Coordinators in the schools. Through study and experience it became clear that one technology coordinator without classroom teaching duties would be required to support computing for every 500 students. In most cases this amounts to one technology coordinator in each school. The definition and establishment of the technology coordinator's role required the close attention of the principals since no such position is currently defined and funded by the Chicago Public Schools. Therefore, principals had to isolate salary support in their discretionary funds. CUIP encouraged principals to attend principals' retreats with their technology coordinators at the University and thereby elevated the importance of the technology coordinators role and centrality to success.

We define the technology coordinator's position as Janus in nature, having two faces, one oriented toward keeping the machines running and the other oriented toward making them effective teaching and learning tools.

During the 2002-2003 school, under the coordination of Mitchell Marks, CUIP convened three meetings among the schools' technology coordinators to discuss challenges and strategies. These meetings were held in various CUIP schools and very well attended in an atmosphere of camaraderie among the participants. Discussions focused on many crucial issues surrounding technology integration. Technology Coordinators also

discussed the implementation of Chicago School Board mandates in regard to virus protection, minimum system requirements, Internet content filtering.

Learning Technologies Classroom Integration

Ultimately, all of efforts of CUIP are aimed at our cumulative goal of pervasive standards-based, technology supported teaching and learning at all grade levels. To achieve this goal CUIP has supported teacher efforts to create and implement technology based classroom projects, as discussed above. In particular, during the school year Technology Resource Advisors and Neighborhood School Program students follow-up with former participants of the Web Institute for Teachers in order to implement the projects they created during month of July.

As the schools have made progress and increased their capacity CUIP has been asked to support several special projects which require a generally advanced level of expertise and organization. Such as after school club activities that producing school newspapers using publication software, computer club activities concentrating on the production of digital video projects and Flash presentations. Lastly, during the 2002-2003 school year CUIP successfully partnered with a teachers at one school to create Student ePortfolios (electronic portfolios). During after school hours a CUIP Technology Resource Advisor, Shaz Rasul, worked closely with teachers to conceptualize and build electronic environments in which student work could be stored and retrieved. The project required a great deal of internal organization among the teachers and administration as well as a fairly advanced server configuration to house the projects and records.

In addition, CUIP encouraged and supported local technology fairs. These events motivated teachers and their students to present their technology achievements to their peers, parents and school leadership. CUIP incentivized these events by offering pizza parties to the “winners” of the fairs that demonstrated the most ambitious and exemplary projects. It should be noted that in keeping with Chicago tradition, pizza, and all food, for that matter, motivated teachers to attend meetings, students to work hard and people to feel connected to CUIP efforts.

In May of 2002 CUIP held its first annual Technology Expo at King College Prep High School. Students and teachers that had created exemplary projects from local CUIP tech fairs were invited to King to present their work at the Expo which was themed “You can do this too!” The event brought great excitement and lent legitimacy to teachers’ and students’ efforts. Students and teachers from all 29 CUIP schools were invited to attend the Expo to learn about the work of their peers. Approximately 1000 students attended to see the work of 36 teachers and their classes, many of them live internet-based resources. In the following year, in May 2003, CUIP partnered again with King High School to produce a second Expo themed “You can do this 2.0!” Again, 1000 students attended to view an increased display of teacher projects numbered at 70. A key success factor for these events was to create technology scavenger hunt which drew attendees from presentation to presentation. Upon the successful completion of the scavenger hunt students were awarded with a CUIP t-shirt which displayed CUIP logos and a list of the names of the CUIP schools. These were a big hit among both students and teachers who continue to wear their t-shirts with pride.

Lastly, since nearly the inception of CUIP two initiatives have been aimed specifically at producing high-quality on-line content for use in the CUIP schools and in all Chicago Public Schools. These projects are the Chicago WebDocent Project and eCUIP: The Digital Library Project. The Chicago WebDocent Project works with Chicago teachers to create standards-based, on-line curriculum materials based on digitized museum artifacts. In a similar fashion, eCUIP: The Digital Library Project works to publish online reading and reference materials to augment the often meager offerings of local school libraries. These projects operate as a result of a set of unique relationships between CUIP, several Chicago museums and libraries and the Chicago Public Schools. They offer a new way to produce high quality content for public school consumption based model of shared responsibility and partnerships. Both Chicago WebDocent and eCUIP: The Digital Library are described in full in following sections of this paper.

Key Success Factors for CUIP’s in-school activities

The success shown by the schools to incorporate computers and the Internet into everyday teaching and learning is due, in large part, to the strong partnering relationships with

teachers and principals. Teachers and principals are the most well informed and most deeply experienced professionals available to us from whom we can learn. By and placing them at the center of our efforts, witnessing first-hand the barriers they faced toward the integration of computers and the Internet and by listening closely to their concerns, CUIP was able to create and implement partnered programs that addressed their immediate concerns on a reasonable timescale. Also, our highly flexible and patient attitude toward the adoption of technologies and change, a lack of a specific pedagogy or predetermined path has also lead to success. Our programs carefully matched the capacities of those involved and overcame barriers to technology integration both large and small.

Over time CUIP has introduced and developed ambitious ideas new to the schools while working to steer schools around what appeared to be significant pitfalls. We were careful not to be too stubborn in our demands for rapid change. In all instances we set our expectations high which sent a message to the schools that they should settle for no less than the standards enjoyed by wealthier, more effective school districts. We knew, however, that given the often disadvantaged position the schools were in, that it would take some time to reach our goals. Often, expectations, when repeatedly expressed become critique. Perhaps one of our greatest abilities as a group was to find just the right level of ambition while working to make sure that the schools remained comfortable and did not feel alienated by our ambitious suggestions.

From the outset CUIP also made it clear that the effort in its current incarnation would be terminal concluding after five years of work. CUIP did not seek to study the schools or create a model. We did not seek human subjects for research purposes. Though we watched closely the test scores by which schools are judged, we did not make student performance a metric by which our efforts would be judged. As a result we were able to avoid the morass of determining the success or failure of the CUIP program based on the performance of students on tests. Our goal was to create a “computer culture” which could be measured in the practice of the everyday.

CUIP has established greater capacity and technology leadership in the schools. We worked to bolster principal leadership by providing them with knowledge and

consultation. We spent time training teachers to improve their skills and supported their efforts to create their own classroom ready projects. Lastly, as mentioned, we made successful efforts to establish and define the role of the local school technology coordinator, a person whom we have found is the lynchpin to many of the accomplishments witnessed in the schools. In essence we have worked with individuals at every level of the school to re-imagine their roles and responsibilities in regard to technology and adopt new expectations and aptitudes.

Though CUIP did not concern itself highly with test score data, the numbers by which most all school reform achievement is measured, CUIP collects much data in regard to our initiatives. Most all of these metrics were developed by Don York, CUIP Director and renowned Astronomer. In Don's work mapping the universe he is required to establish means by which to measure complex phenomena very large and very small. He is expert at creating meaningful metrics and effective estimation. Don brought this expertise to bear when measuring the progress of CUIP's work in the schools. Perhaps most significantly, he and the CUIP staff shared these measures with the principals and teachers as a way to track progress and instill a common language and set of goals in regard to technological growth.

The "frontline" staffing of CUIP, those that enter the schools and work therein with teachers on a day-to-day basis, is composed of undergraduates in the college, graduate students and those with their masters degrees. They are dedicated and bright learners often interested in becoming teachers without specific experience and backgrounds in education. (The University of Chicago no longer has a school of education.) Therefore, they encounter their work without rigid pedagogic expectations nor an academic approach of study. They work to make progress and learn along side their teacher-counterpart. Their focus is on the teachers' professional and personal development rather than on regulations and mandates for skills improvement as might be passed down from the central administration of the Chicago Public Schools. Such mandates and requirements are often met with resistance by the teachers and generally do not result in changes to teaching practice.

Meetings, particularly those sanctified by food and conducted with elements of formal protocol such as agenda, introductions, presentations and moderated discussion, formalized our efforts and partnership. The many principals' retreats, technology coordinator meetings, local school technology fairs and the cumulative CUIP Technology Expo brought focus, charge and cohesion to those involved. In short, these ceremonies marked our group with the significance of community and purpose. Individuals were identified as important to our mission and came away with not only new ideas but also with a new sense of involvement and a role in effecting change.

Three other factors must be noted as well. First, the schools in the program were selected based solely on geographic location and proximity to the University of Chicago. The CUIP schools are our neighboring institutions. No school is further away than a 15-minute ride in a car from the campus of the University. This allowed for consistent visits and face-to-face contact. By working together we developed and strengthened natural bonds based on geographic proximity. Secondly, the Department of Physical Sciences at the University of Chicago, which handles funds for the program charged no overhead on the money needed to run the program. This meant that we could dedicate 100% of the funds of the program. As well, there were periods when the Chicago Public Schools were tardy in paying their bills. During these times the Department of Physical Sciences overlooked the accounts indebted by hundreds of thousands of dollars while the financial arrangements were rectified. This allowed CUIP to remain active, retain its staff and continue to exist although its accounts had run dry. Lastly, as mentioned, the success of the CUIP partnership in the 29 schools rests squarely on the foundation laid by Duel Richardson, Director of Neighborhood Relations for the University of Chicago. For 25 years Duel has worked closely with schools to provide student tutors via Neighborhood Schools Program in the CUIP schools.

CUIP Curricular Partnership Initiatives:

Chicago WebDocent

<http://www.chicagowebdocent.org>

Mission

The Chicago WebDocent Project (CWD) is a collaboration of the University of Chicago, the Chicago Public Schools, and seven Chicago cultural institutions (museums and libraries) to develop online curriculum modules in areas where Chicago Public School teachers perceive a “gap” in adequate resources to teach required subjects.

To this end, CWD staff work with Chicago Public School teachers to identify topics to be developed as curriculum modules; museum educators, archivists, and curators to identify and interpret primary source materials from their collections to be digitized; University of Chicago faculty, students, consultants and experts with subject area expertise review lessons. The result is teacher-created, standards-based online curriculum modules featuring primary source materials from leading Chicago cultural institutions. CWD facilitates this collaboration by uniting content from teachers and cultural partners in an interactive online interface that fosters engaged teaching and learning.

History

This unique collaboration is now entering its fourth year. The project got underway at the request of CPS in March 1999 as an effort to provide high-quality materials that could be delivered using the new desktop computers and Internet infrastructure that was being put in place in the schools. Donald G. York, the Horace B. Horton Professor of Astronomy and Astrophysics at the University of Chicago, and Susan Higinbotham, a civic volunteer active in Chicago cultural institutions, contacted museum directors at the Adler Planetarium and Astronomy Museum, Field Museum, Museum of Science and Industry, and the Oriental Institute about becoming our first partners. The directors of these institutions all signed a letter of support that brought funding to the project that was soon to be named Chicago WebDocent. Later, the Chicago Historical Society, Newberry Library, and DuSable Museum of African American History joined the collaboration. These additional partners were requested by teachers writing for the project based on their interest in using particular collections as part of the curriculum.

Staffing

The project staff consists of two full-time positions, a project director and a creative director, and a 1/5 full-time equivalent systems support administrator. In a development cycle lasting roughly nine to 12 months, between 6-14 Chicago Public School teachers

may be subcontracted as writers. As an initiative of CUIP, WebDocent also benefits from the efforts of colleagues at CUIP who support and promote the project in the course of their daily work in the schools.

Curriculum Development Process

A key success factor in this collaboration has been to make CPS teachers central to all aspects of project development. WebDocent lessons are created with urban school children in mind. CPS teachers know what skills and knowledge their students need and what will engage them. For this reason, WebDocent lessons are written as stories. Story telling is an effective way of communicating a lesson that will engage a student's imagination while delivering content standards for learning.

The process for identifying and developing materials begins with a meeting of teachers and CWD and museum staff. At this point a short list of possible areas for content development, has been collected from teachers through informal polls throughout the year. With all partners present, the group determines the best topics for development based on immediate need and relevance to museum collections. Subsequently, teachers determine the scope and sequence for the modules to be developed, and national and local standards are identified for correlation to the curriculum.

During the writing stage teachers prepare a 2500-3000 word lesson written as a story. In addition to the lesson, teacher "deliverables" include a list of images from our cultural partners to accompany their story, vocabulary words, journal questions, a quiz, and additional activities that extend the lesson offline. CWD staff research and develop a teaching guide and suggested web links that complement the lesson in order to help teachers integrate the lessons into classroom practice. Before the lessons are published, teachers and CWD staff review them for accuracy, quality of instruction, and appropriate reading level. An expert reviewer from the University of Chicago, one of the museum partners or other organization, also reviews the lesson for accuracy.

Current offerings

Our focus is on social studies and science topics for 3rd-8th grade that draw upon the collections of our cultural partners. Current CWD curriculum modules are Transportation

in Chicago History, Illinois History, Economics in American History, and Origins of Writing in the Ancient World. Each curriculum module contains 6-12 lessons.

Educational Approach and Implications for Teaching and Learning Strategies

WebDocent lessons are interdisciplinary. The historical story-lesson approach and interactive features of CWD support Illinois Social Studies standards, and Language Arts standards for reading, writing, researching, and developing word analysis strategies. Lessons use the context of the story to integrate math and science standards through simulations and animations that explicate processes, interactions, and chronological events. These require students to interact with lessons through multiple modes of understanding and sensation (reading, writing, close observation, listening, calculation, decision making and manipulation).

Unlike textbooks that strive for coverage, WebDocent modules offer deep and rich content on selected topics rather than a survey approach. Furthermore, students are exposed to authentic primary source materials from Chicago museum collections and encouraged to consider the richness and opportunity of their world outside the classroom.

Successes of the Chicago WebDocent Program

When CWD got underway in 1999, much of the groundwork had been laid for collaborating with teachers, CPS administration, and the University of Chicago administration by CUIP. The truly uncharted territory was how to successfully integrate a heterogeneous group of cultural institutions into this partnership. There is no precedent for this collaboration.

While our cultural partners view their participation in the project as a valuable service to the community, initially there were some concerns. Some institutions were concerned about publishing museum content on the Web because of fears of losing revenues from use fees and infringement of property rights. Restricting access to the WebDocent website to Chicago Public Schools only was a solution to alleviate these concerns; however, in the ensuing years, many of our partners are now willing to extend access beyond CPS. As a result, we have been able to publish a public node of the Chicago WebDocent site.

Likewise, each of our cultural partners has very different internal structures and practices regarding digital image acquisition. For every partner, we need to identify an internal “chain-of-command” within the institution to facilitate the process of acquiring content; in addition, the expertise of museum educators, curators, and other museum staff is required from time-to-time. As a result, it has been important to devote CWD staff time to being present in the museums, to meet staff in various departments, and to actively keep the work of the project in front of the partners.

The biggest obstacle in acquiring content has been technological. Few of our museum partners are actively digitizing and documenting their collections with metadata. CWD staff usually acquires image content in media such as prints or slides and scans them at the University. We then return the original media to the institutional lender along with a CD of high-resolution images for their archives. While this is time-consuming, in some ways in-house scanning is preferable because often partners who have digital images can only provide low-resolution derivatives. As there is little consistency among the images provided by the various partners, in-house scanning has become the preferable route to ensure quality control and return value to our partner institutions.

Future Modules and Initiatives

Currently, we are in production on two modules on the Constitution of the United States and the Periodic Table of Elements, and are planning new modules on Africa and the Elements in Space. We are also adding new interactive features to our interface. Along with CUIP and eCUIP the Digital Library Project, WebDocent is working on a project called TUCK (Teaching Units for Chicago Kids) to map the CPS K-12 curriculum. TUCK will help us identify the scope and sequence of topics covered in K-12 so we can plan systematically for developing new modules and for identifying a teaching collection of primary source materials from Chicago cultural institutions.

Our vision of the future includes more partners and adaptations of WebDocent materials for students with special needs in the CPS population. In Chicago, as in other urban areas, there is a high percentage of minority and immigrant children, and children living in poverty. We envision a day when WebDocent materials will be available to private and

parochial school children in Chicago as well as to children in communities outside of Chicago with similar needs.

The goals of WebDocent are many. We want to directly involve CPS teachers in the development of high quality curriculum materials based on local collections. We want to leverage the technology infrastructure put in place in the schools by CPS to deliver these deep and rich, engaging curriculum materials to Chicago's public school students. We want to distribute excellent teaching to more kids than any one single teacher could reach in a year, and introduce students to the world of learning experiences that are possible using technology. Finally, through technology, we want to extend the educational mission of Chicago's cultural institutions into classroom and to open a new channel to the community.

Key Success Factors to the Chicago WebDocent Collaboration

Have a clear, achievable mission.

Know your audience (in our case, CPS students and teachers)

Make your target market central to all aspects of the process (in our case, teachers).

Brand your uniqueness.

Pay teachers for their work.

Begin with low expectations from cultural partners and return value

Stay flexible and be prepared to revise and adapt the process.

Always push forward on research and development of the product.

Remember that relationships count – nurture them.

eCUIP: The Digital Library Project

<http://www.cuip.net/ecuip/>

Mission

eCUIP: The Digital Library Project is an initiative of CUIP works with Chicago Public Schools to provide comprehensive Web access to high-quality primary and secondary reading and research source materials that support K-12 classroom instruction and

individual student inquiry. With Internet-enabled computer technology, a core collection of electronic publications, and a growing body of locally digitized source materials, all students can have access to a wealth of information far beyond what any single school is able to provide. Toward this end, the eCUIP Web site, launched in September 1998, is an expanding digital library of teacher-selected materials designed to encourage resource-based learning and facilitate the integration of technology into the classroom.

History

The eCUIP collaboration between the University of Chicago Libraries and the Chicago Public Schools began in 1997 to respond to the numerous shortcomings in the library-media centers of CUIP schools as identified by a team of teachers, librarians, and parents. The general consensus was that the size and relevant age of the library collections were inadequate to support even a rudimentary library program in the school, much less the level of student research necessary for successful educational careers. To respond to this need, a group of public school teachers and librarians from the CUIP schools, University of Chicago librarians, CUIP staff, and University faculty members met to develop eCUIP. The eCUIP digital library Web site was launched one year later with a limited collection of locally digitized materials. Since its inception eCUIP has expanded its reach beyond the 29 CUIP schools to the entire Chicago Public School system.

Staffing

eCUIP's staff is affiliated with the Digital Library Development Center (DLDC) of the University of Chicago Library. The DLDC coordinates and oversees all digital activities University of Chicago Libraries. The DLDC builds and maintains the eCUIP Web site using recent standards and best practices in regard to digitizing, describing, programming, and maintaining the digital collections. eCUIP is overseen by the Co-directors of the DLDC and consists of two full-time employees, a project manager and a Web producer. The University Libraries also offer to the collaboration access to portions of its vast digital collections.

Collection Development Process

Chicago Public School teachers and librarians lead the collection development process for the digital library. eCUIP staff actively recruit teachers and librarians from throughout

the schools who identify specific needs of their library media centers and schools that can be addressed with the introduction of digital resources. The teacher collaborator then works closely with eCUIP staff to identify and collect extant resources from the collections of the University and other local cultural institutions in the subject/topic area that are age and reading level appropriate and lend themselves to digital representation, including books, articles, objects and/or artifacts, images, etc. Once the resources are identified and digitized, they are compiled in Web-based resource modules, or learning collections, within the digital library. These modules collect digital reproductions of resources and may also include ancillary learning objects that encourage a deeper understanding of the resource. The modules also highlight extant, high-quality Web-based resources that have been identified by a teacher collaborator as relevant to the public schools' curriculum. The teacher collaborator consults with the Web producer throughout the design process and approves the final product.

Further Planning and Development

In addition to creating digital collections, the eCUIP staff conduct meetings with Chicago Public School Librarians and leadership from the Chicago Public School Department of Libraries. These meetings focus on introducing eCUIP resources to the librarians and planning the development of a comprehensive digital library for the Chicago Public Schools.

Current Offerings

The 1893 Columbian Exposition module exemplifies the typical eCUIP resource (http://www.lib.uchicago.edu/ecuip/diglib/social/worldsfair_1893/index.html). The collection includes over 100 original images of the fair from the University of Chicago Library's collection. Here eCUIP provides access to the images, historical background information, a digital recording of a lecture given by Neil Harris, Preston and Sterling Morton Professor of History at the University of Chicago and expert on the World's Fair and, an Interactive Map of the Fair that allows visitors to explore the fairgrounds.

Other examples of that typify eCUIP resources are Hyde Park Houses and "Bringing the Heavens to Earth." Hyde Park Houses is a book that documents the architecture of the

neighborhood surrounding the University at the turn of the century (<http://www.lib.uchicago.edu/ecuip/diglib/social/hydeparkhouses/index.html>).

The "Bringing the Heavens to Earth" collection (http://www.lib.uchicago.edu/ecuip/diglib/science/cultural_astronomy/index.html) explores the ways and means humans have used observations of the sky to improve their daily lives, a discipline known as cultural astronomy. The collection supplements a semi-permanent exhibit of the same name at the Adler Planetarium and Astronomy Museum in Chicago. In this instance, however, the extant cultural astronomy resources were not age or reading level appropriate so eCUIP staff partnered with 6 Chicago Public School teachers and content experts at Adler Planetarium and Astronomy Museum to create original resources that expand upon the exhibit and bring the experience to the classroom or home.

Currently, eCUIP includes collections on such topics as Ancient Egypt, paleontology, Chicago history, and more. Collections in development include materials from the Ida B. Wells collection at the University of Chicago, letters from the Great Migration in collaboration with the Newberry Library, the history of Chicago neighborhoods, and public art in Chicago.

Key Success Factors for eCUIP

The digital library project is a success because it brings together the unique skills and experiences of the University of Chicago, the Chicago Public Schools, and local cultural institutions. The University staff provide experience facilitating, producing, and maintaining digital collections; the teacher collaborators bring knowledge of the needs of the public schools' and, local cultural institutions including the University provide access to the objects, artifacts, and intellectual knowledge that are the core of the digital library.

Organizational and Educational Approaches of the Chicago Public Schools |
University of Chicago Internet Project, Chicago WebDocent and eCUIP: The Digital Library – Implications for Large Institutional Partnerships in Education

Placing teachers, principals and students at the center of all CUIP initiatives has been crucial for our success. By working to identify existing strengths and develop further capacity in the schools CUIP worked toward the goal of self-sustainability in the realm of learning technologies. This focus requires strong working relationships which can only be developed over time through face-to-face contact on-site in the schools and on the campus of the University. By meeting in both locales reticence and fear are dissolved and trust can be established. Only in this way can tensions typical of “town/gown” arrangements be overcome. Ultimately, respect and understanding grow, group loyalty is established and progress can be made.

In the case of CUIP, the University, the Public Schools and the Museums are educational with radically different audiences and therefore radically different approaches to their missions in teaching and learning. Effective partnerships between these entities rest on all parties listening and learning concurrently from one another. Each partner must remain committed and responsible their central mission and what they do best while welcoming contributions from other partners that they can not (not should not) provide. The public schools offer principals and teachers with the experience and knowledge of effective teaching and learning methods, museums offer access to objects and interpretation, libraries contribute original source materials and the expertise of catalogs and collections while the University offers the support of individuals committed to education and centralized, neutral place from which initiatives can be organized.

When programs, supporting materials and web resources are developed and shared in common between these partners new networks of knowledge and support are developed. All parties can participate and the likelihood of success is much greater. Though information technology was at the center of our efforts, the channels of communication needed to make these efforts come to fruition were not mediated by technology. Events, school visits, retreats and day to day contact hold CUIP together and allow for success. Only over time, once these bonds of loyalty and commitment were established, could email augment our activities.

In “The Gift” Marcel Mauss wrote that the exchange of gifts is one of the fundamental elements that defines our communities and holds them together but which must be

constantly renewed. In the case of CUIP, its partner schools, museums and libraries, the gifts are many, offered with respect and reciprocity in solidarity.

Appendixes:

Relevant Web Site Addresses:

<http://www.cuip.net>

<http://www.chicagowebdocent.org>

<http://www.cuip.net/ecuip/>

<http://www.webinstituteforteachers.org>

Current CUIP Schools –

Ariel Community Academy

Canter Middle School

Carnegie Elementary School

Dumas Elementary School

Dyett Academic Center

Fermi Elementary School

Fiske Elementary School

Fuller Elementary School

Harte Elementary School

Hyde Park Career Academy High School

Kenwood Academy High School

Kozminski Community Academy

King Regional College Prep

McCosh Elementary School

Mollison Elementary School

Murray Language Academy

North Kenwood/Oakland Charter School

Price Elementary School

Ray Elementary School
Reavis Elementary School
Paul Revere Elementary School
Robinson Elementary School
Shoemith Elementary School
Tesla Alternative High School
Wadsworth Elementary School
Woodlawn Community School
Woodson North Elementary School*
Woodson South Elementary School*

* Woodson North and South Schools will be combined in 2003-2004 so that renovations can be made to Woodson North.

Past CUIP Schools

Donoghue Elementary School – Closed due to declining enrollment caused by the implementation of the Chicago Housing Authority’s Plan for Transformation which calls for the demolition of thousands of units of public housing and the displacement of many families.

Tesla Alternative High School – Closed at the end of the 2002-2003 school year.