

Media MashUp: Public Libraries, Youth and 21st Century Literacy

Media MashUp mobilizes a national public library network to establish 21st literacy outcomes in a collaborative, innovative, informal learning program for youth in rich media content development. These literacy outcomes are in demand by employers and reflect significant shifts in the role of education and technology in society over the last 20 years. Further, this project provides practice-based research on organizational structures that support implementation of rich media and technology-based programs in libraries. This project is led by the Hennepin County Library, in partnership with the Science Museum of Minnesota, Wilmette Public Library (IL), Public Library of Charlotte Mecklenburg County, Memphis Public Library, the Free Library of Philadelphia, and the Seattle Public Library. The project will lead to a framework for best practices in technology program implementation using rich media. It will also provide a snapshot for libraries and administrators of key characteristics of organizational change and adaptation that support technology-rich youth programming.

NEEDS ASSESSMENT

Public libraries have long provided structured programming, such as homework assistance, that successfully supports and supplements teens' formal education experiences. The focus has tended to be on academic, rather than social or developmental support. Increasingly, libraries are providing teens with unstructured opportunities to support broader youth development goals. Teen advisory groups, teen book clubs, teen gaming and teen conversation circles are part of the new wave of programming that engages youth in library-based activities that result in positive youth development. Public libraries have responded to youth in libraries with an expanded range of activities that are designed to provide a positive setting for youth development.

These programs are developed and implemented by increasing numbers of library staff who are trained and dedicated to serving youth as a core audience inside the library and through outreach visits. Yet youth programs in libraries tend to be developed and implemented in isolation. Librarians lack tools for identifying instructional approaches that meet the specific needs of teens. And libraries lack the organizational infrastructure to support the integration of new technologies relevant to teens. Implementing desirable programs for youth, such as gaming and conversation circles, often bumps up against traditional library practices, putting pressure on libraries to find ways to adapt and reallocate space and services.

It is clear, however, that libraries have made a tremendous commitment to serving youth where they are developmentally, academically and socially. Public libraries are a natural gathering place for youth and also have an established role in offering access to a range of technology. A new Pew Internet and American Life Project report documents libraries' success in establishing the library as a relevant place for the young (http://www.pewinternet.org/pdfs/Pew_UI_LibrariesReport.pdf). One way public libraries have responded to youth in libraries is with an expanded range of activities, all of which share a foundation rooted in the desire to provide a positive setting for youth development. Libraries provide gaming programs that feature console-based systems (like the Wii®) with consumer-off-the-shelf software (such as Dance Dance Revolution®), chances for leadership with Teen Advisory Groups, and academic help through homework programs. By and large, however, these programs have not been subject to higher level, outcome-based

evaluation by public libraries. There is a current of research related to gaming in libraries taking place at universities, but not research related to informal learning in libraries. The Media MashUp proposal is based on a clear need to identify a role for public libraries in informal learning, the need to evaluate youth outcomes from program participation (related to 21st century literacy skill building) and the need to address the changes necessary for libraries to consider as they adopt technology-based innovative programming.

Over the last two years the Minneapolis Public Library (now Hennepin County Library) has developed a research-based approach to computer-based, media-rich youth programming that addresses the infrastructure, instruction and assessment issues that are specific to the needs of youth and staff. One program, the Game Studio, has served as a pilot project in which youth designed media-rich games using the Scratch programming environment. The Game Studio projects have received over \$80,000 in direct financial support from the Best Buy ® Children's Foundation since 2006. The Game Studio Literacy Evaluation Project, conducted in 2007-2008, paved a path for this proposal, Media MashUp, by studying the infrastructure, instruction and assessment criteria that are specific to informal, media-rich, youth programming in libraries. During Game Studio workshops, youth engaged a variety of technology programs using an MIT-developed programming environment called Scratch (<http://scratch.mit.edu>). Game Studio workshops were developed and taught by staff from the Learning Technologies Center of the Science Museum of Minnesota. The program expanded from a singular focus on Scratch to include software (all free) that use Audacity, Picasa, and ArtRage. Participants created rich media products that may use game elements, but may also focus on music or narrative development within the Scratch programming environment.

The development and design activities that are central to Game Studio contribute to the development of 21st century literacy skills in participating youth. Media MashUp brings this successful programming to a national set of partners to test the evaluation of literacy skills as well as to develop best practices for the implementation of technology programming at public libraries. The Media MashUp project is designed to demonstrate that libraries can respond to the real needs of youth related to literacy in the 21st Century and identify the real outcomes of youth participation in informal learning activities.

21st Century Literacies

Teen book clubs and homework help programs reinforce the formal learning of text-based literacy skills. But in the early 21st century, literacy programs for youth also focus on developing and enhancing newly identified skills, practices and attitudes. These literacies include interactive engagement with technology, collaboration and team problem solving, taking initiative and managing time and the use of higher level processing skills, fall under the rubric of 21st century literacies. Several organizations and researchers have identified core 21st century skills that youth need for success in life, work, and higher education (Peppler and Kafai, under review, Conference Board, 2006 <http://www.conference-board.org/publications/describe.cfm?id=1218>, Minkel, 2003). Libraries are well positioned to lead youth development efforts in supporting 21st century literacies. As an informal learning organization, the library has the opportunity to provide youth with skills that are neglected in formal educational settings (Peppler, 2008).

This project addresses the shift in the nature of basic literacy from text-based reading and cognition to incorporate a larger set of skills that involve technology skills, higher level problem solving, cooperative relationships and a global perspective (Minkel, 2003, Junion-Metz, 2005, "Learning for the 21st century" http://www.21stcenturyskills/p21_report.pdf).

This proposal specifically targets youth who are in great need of these new literacy skills and who may not be succeeding in traditional schools as they move forward to the workforce or higher education (Peppler, 2008). An examination of a series of documents on 21st century literacy skills points to a common core of critical skills

- flexibility and adaptability
- productivity and accountability
- critical thinking and problem solving.

Particularly noteworthy are those promulgated by Peppler and Kafai, enGauge, (<http://www.bcps.org/offices/lis/staging/activesci/images/litskillsbrochure.pdf>), the Partnership for 21st century Skills (<http://www.21stcenturyskills.org/>), and the Conference Board (http://www.conference-board.org/pdf_free/BED-06-Workforce.pdf). Consistent among these approaches are what Peppler (2008) calls the Media Arts Process (MAP). This is a youth's ability to use creative, technical and critical media skills in everyday life. Components of each of these skill sets are now required for youth to succeed as they enter the workforce or higher education. These skills grow out of a notion of life long learning that emphasizes the need to understand how to learn and adapt to change. Media MashUp acknowledges both the shift in the nature of basic literacy skills and the critical role public libraries in informal learning.

Project Goals

Media MashUp is designed to address the question, How do you support the development of 21st century learning opportunities for youth in libraries, specifically within the context of rich media programming? The project will codify, establish criteria for and demonstrate scalability of the program in terms of:

- Organizational Change
- Staffing (training and implementing)
- Instructional methods
- Hardware and Software
- Design of youth learning environments

These criteria will establish and document best practices for implementing informal technology programming that supports 21st century literacy skill development in public libraries.

NATIONAL IMPACT AND INTENDED RESULTS

The impact of this project is nation-wide; the literacy and organizational issues this proposal addresses are meaningful for all public libraries, and particularly those that offer teen and technology programming. This project will contribute the missing piece: A language and process that will enable libraries to talk in real, measurable terms about the impact of technology related programs for youth. This project also provides a chance to examine how library spaces might be built and equipped for informal learning for youth and adults. Further, this grant will articulate a process for libraries to follow in developing and implementing innovative technology programs. The project will identify key organizational issues that challenge program implementation and provide realistic solutions. All public libraries will benefit from this articulation of best practices in youth and technology programming.

Media MashUp will evaluate, verify and document the 21st century literacy skills developed by youth in a rich media workshop setting at six library systems across the United

States. Further, research will be conducted on each library's implementation process to learn how public libraries can proactively adapt to community and technological changes. What lessons can we bring forward to establish best practices for supporting youth and technology programming within the library community? Where do individual departments and libraries need to find flexibility in policies and procedures to foster the development of key literacy skills? Is it still reasonable, for example, to limit the number of users who can gather near a workstation? Is a one hour time limit on all computers the best way to foster the development of 21st century literacy practices? Where is the balance between give and take? Do libraries simply need to 'loosen up and go with the flow' or are there compelling reasons for maintaining policies and procedures that constrain our ability to be flexible? If so, what are they?

This project will document 21st century literacy skill development in participating youth. The project evaluation and research will provide a platform for literacy skill development and a sound argument in favor of the importance of innovative technology programming. It is anticipated that the 21st century literacy skills developed through Media MashUp will contribute to enhancing youth's future career and educational opportunities (Being Fluent in Information Technology, National Academy of Science, 1999, <http://www.nap.edu/html/beingfluent/ch1.html>, Peppler & Kafai, under review, "Are they really ready to work?" Conference Board, 2006 <http://www.conference-board.org/publications/describe.cfm?id=1218>). The project will also demonstrate that the Media MashUp enhances 21st century literacy skill development among a wide range of youth. Our partners run the gamut from a small library system serving a limited, upper income population to large urban systems serving sizeable low-income and immigrant populations. We anticipate that participants' literacy outcomes will be consistent among locations, thus firmly establishing Media MashUp as a key 21st century literacy training program.

PROJECT DESIGN AND EVALUATION *(see also Table 1, Narrative page 5)*

In Media MashUp we *meet youth where they are* in their knowledge, interest and understanding of rich media creation and in their desire to create digital artifacts that represent their interests, knowledge, creativity and personalities (Houghton-Jan et al, 2006 http://www.sirsidynixinstitute.com/Resources/Attachments/Slides/houghton_20061010.pdf). Youth will be taught basic programming skills, such as programming language and concepts, using Scratch as the main software platform. Youth will create and animate characters and backgrounds, program movement and dialog, and more. Additional software such as Picasa (photo editing) or Audacity (music) or ArtRage (graphic design) – allow youth to bring a full range of their creative and artistic talents to the Scratch platform. Media MashUp is less about teaching the technologies involved and more about providing youth an opportunity to bring the best of their creative selves to a wide audience in both novel and familiar formats. A constructionist educational approach posits that engaging learners in pursuits that demand participation and decision making ensures the best outcomes, and it is on this educational perspective that Media MashUp is founded. (Kafai and Resnick, 1996)



Project Implementation

Project implementation will begin in November 2008 with the customization of the ScratchTM software for use in evaluation data collection and participant registration. ScratchTM is the software platform used by MIT to facilitate social networking and project sharing by Scratch users. MIT staff has eagerly agreed to permit the project team to borrow the coding from the ScratchTM website for creating the evaluation instrument. In December 2008 partner library staff (two per location) will visit Minneapolis for a four day intensive Media MashUp course taught by staff from the Learning Technologies Center at the Science Museum of Minnesota. The focus will be on articulating the keys to successfully teaching Media MashUp, among which are: The ability to take on the role of learner or the role of mentor; to be comfortable with failure and experimentation; and a willingness to try something new (Klopfer, 2007, Pepler, 2008). The Media MashUp course will focus first on familiarizing teachers with the Scratch programming platform and other software and, second, on responsive (just-in-time) teaching skills. The course will also provide an introduction to and instruction in using the evaluation software. Through the course of the project, staff in Minneapolis will remain available for consultation and a web-based support tool will be developed and used to support these new teachers in continuing to develop techniques, share experiences and cohere as a social group

The participating libraries will offer eight formal workshops as well as monthly Open Studio times throughout the year. A workshop is a two-hour class held in a formal or informal technology lab with four or more workstations. The Open Studio time is offered in response to formative evaluation of the pilot project that demonstrated the need for a

persistent presence in libraries of opportunities for rich media project development (Nelson, 2007). In total, each library staff will devote 40 hours to holding workshop and studio time. An additional 40 hours per staff is budgeted for activities such as marketing, course development and project communication.

Media MashUp workshops use Scratch as the primary creative canvas. Scratch uses an intuitive building block approach to programming rich media projects. Rich media projects are those that incorporate elements of sound, visual arts, interactivity and animation in one technology-based platform. The building blocks used by Scratch emulate the design of Lego® blocks – the size, color and shape of each type of command is unique and shapes that don't fit together can't be programmed together. The program provides easy visual cues that demystify the traditional programming debugging process. Scratch allows users to import images and sound from other technology formats – digital photos or music clips, scanned drawings or images in jpeg format – to use in projects. Media MashUp workshops provide access to drawing, photo editing and music creation and editing software so that youth may work on projects that showcase individual strengths as a prelude to creating projects on the Scratch canvas. The software was chosen because they are open source and freely available. As youth have computers available in other spaces, such as home or school, there will not be a cost barrier to continuing to use these programs. Similarly, libraries will have a minimum invested in software.

Table 1

Media MashUp Schedule of Activities			
Time Frame	Actors		Activity
November 1, 2008- December 31, 2008	Science Museum Programmers		Configure beta version Media MashUp evaluation tool; conduct formative evaluation of tool
	Partner Libraries		Attend training workshops in Minneapolis, participate in formative evaluation of Media MashUp tool
	Science Museum Instructors & Library Project Staff		Prepare Media MashUp training curriculum and deliver training; develop questionnaire and interview questions for administrative interviews
January 1, 2009 – December 31, 2009	Partner Libraries		Conduct Media MashUp workshops and Open Studios, implement Media MashUp website as registration/evaluation tool
	Science Museum Project Staff, Library Project Staff		Collect evaluation data from workshop instructors, youth
	January - March 2009	Library Project Staff	Visit each partner library (through March 2009) and observe workshops, model reflective data collection practices. Conduct administrative interviews at each partner library.
	March 2009	Advisor Meeting #1 (Minneapolis)	Evaluation and literacy group; approximately 1/2 of the advisors will meet to review data collection practice and initial literacy outcomes
	August 2009	Advisor Meeting #2 (Minneapolis)	Library structures and organization group; approximately 1/2 of the advisors will meet to review data collection from administrative interviews and library organization analysis and assess data
	September – December 2009	Library Project Staff	Develop first draft of best practices for library implementation of innovative technology programming
January 1, –	January –	Advisors	Review and comment best practices draft

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June 30, 2010	February 2010		
	January –March 2010	Science Museum Project Staff	Write up literacy evaluation findings
	March 2010	All Advisors, partners and Project Staff	Final summation of project findings meeting
	April 2010	Library Project Staff	Edit Best Practices for Technology Program Implementation for publication, send to select publishers
	June 2010	Partner Libraries, Library and Science Museum Project Staff	Present literacy findings and Best Practices for Technology Program Implementation at American Library Association Conference
June 30 and Beyond	Library Partners and Project Staff		Present findings at regional library conferences such as the Minnesota Library Association, American Library Association Mid-Winter, Public Libraries Association and others

The responsive (just-in-time) teaching approach was developed through the Game Studio Literacy Evaluation Project (Nelson, 2007). This teaching format allows the teacher to meet the needs of individual participants, since the Game Studio Literacy Evaluation Project has found that youth enter each class with very different skill sets from one another (Nelson, 2007). The just-in-time format encourages youth to connect with one another and to experiment in their eagerness to learn new techniques. Responsive teaching enables the teacher to provide guidance while also modeling problem solving behaviors.

Evaluation of the Media MashUp workshops will be led by nationally recognized program evaluator Kirsten Ellenbogen, PhD who has been recognized for her research in family and informal learning settings including the Science Museum of Minnesota. Evaluation of the Media MashUp workshops is designed to capture youths' conversations and work over time. Scratch software includes a built in capture technique that allows evaluators to use an automated copy key to note all programming to date. Evaluators will train instructors on integrating this capture step at three points of each workshop, storing it for review and analysis. Completed projects will be displayed on an online project collection website, based on coding that MIT has eagerly agreed to share. The online portfolio of completed projects will also contribute to the project evaluation. Participating youth complete brief pre- and post online surveys that are integrated into the workshop. Workshop leaders will participate in reflective interviews immediately after four classes. During the initial training, project staff will observe one to two workshops and model data collection and conversation practices derived from the pilot project. Evaluation will also focus on the participating workshop leaders. These staff will prepare techno biographies (Peppler, 2008) and report critical organizational and instructional data through a series of reflective, online diaries.

Project Partners

While many libraries have embraced gaming programs for youth, the programs have tended to focus on appealing activities for youth and increasing youth visits to libraries. Some public libraries have offered youth opportunities for rich media creation, foremost among them are the partners in this grant application: Wilmette Public Library (IL), Public Library of Charlotte Mecklenburg County, Memphis Public Library, the Free Library of Philadelphia, and Seattle Public Library. The partner libraries are equally interested understanding the literacy outcomes of this innovative technology programs as well as investigating the challenges related to program implementation. More detailed information about each partner site can be found in the Organizational Profile section of this application.

The implementation presents challenges to current library policies and practices; for example, some libraries limit the number of people at a workstation which inhibits collaborative project building. Most libraries limit the amount of time a user can spend at a computer per day and some libraries prefer not to install open source software. Most administrative departments in a library are involved in the discussion about where, how and why to adopt technology based programs for youth. This grant will focus on identifying the common themes and strategic solutions to challenges and barriers to implementing rich media learning. Media MashUp will create a roadmap for libraries interested in pursuing innovative technology programs that have literacy outcomes.

The project team manager and research staff will travel to each library to conduct interviews with library administrative, youth services and technical staff to document the processes related to the adoption of the Media MashUp. The team will develop and use a standard questionnaire to focus discussion at each visit and to ensure that libraries may be readily compared to one another. In-person interviews with administrative staff will provide the opportunity to follow up on specific aspects of implementation. Follow-up telephone conversations will allow the research staff to document organizational shifts throughout the project. The output will be a set of best practices for innovative technology program adoption that addresses the sometimes conflicting needs of library departments.

Media MashUp has two focuses; each requires a different design and evaluation process. The literacy aspect of the project is designed to capture evidence from workshop participants that reflects literacy-related issues and is more fully described above. The second focus is a review of the organizational and administrative structure of public libraries and is designed to identify implementation issues and organizational challenges to innovative technology program adoption, discussed above.

Formative evaluation is an inherent part of the project and will be conducted by the Science Museum of Minnesota's Department of Evaluation & Research in Learning, led by Kirsten Ellenbogen, Ph.D. The Institute for Learning Innovation will conduct the summative evaluation.

Project Resources, Budget, Personnel, Management

This project has the full support and backing of the Hennepin County Library and each partner library, as well as the American Library Association and OCLC, Inc. Technical and administrative staff and resources from each library will support the local implementation of Media MashUp workshops and facilitate the organizational analysis. Each partner library will make an in-kind contribution of marketing materials design and distribution, hardware and software support and workshop space. Executive and administrative staff from each partner will directly support the project by participating in the organizational assessment through reflective diaries, surveys and interviews. Partner libraries will make an in-kind contribution of staff time for project training. Partner libraries have each identified two staff who will implement Media MashUp at their library system.

The staff team from each partner represents professional positions ranging from Teen Librarian to Youth Services Manager. Resumes (or a resume from a similarly qualified position) for each designated team member are attached with each library's partnership statement. The set of staff selected by each partner reflects the importance each places on the role of informal learning and innovative technology programs for youth in libraries. The project will continue to draw on the extensive relationship that the Hennepin County Library has with the Science Museum of Minnesota through the web-based evaluation and project

tracking tools. The formative evaluation and research resources available through the Science Museum of Minnesota provide critical expertise in valid and reliable methods.

An advisory board has been established that will provide the team opportunities to solicit feedback on various aspects of the project: Eric Klopfer, PhD and Kylie Pepler, PhD will provide depth and leadership related to media teaching and literacy skills; Dale Lipschultz, Matt Gullett and George Needham will provide insight about library organizations; and Jeff Peterson will aid the team with their expertise around youth development. Ms. Lipschultz also brings her extensive work with literacy to the project. Linda W. Braun has joined the project as a consultant with special expertise on technology, literacy and teens and her participation invests the project with authority from a practitioner's perspective. Media MashUp will be managed by Jennifer Nelson, MA MLS, and Partnership Coordinator for Digital Inclusion at Hennepin County Library. Nationally recognized program evaluator, Kirsten Ellenbogen, PhD and the Director of the Learning Technologies Center, Keith Braafladt, both with the Science Museum of Minnesota, fill out the project team. Resumes for advisors, project staff and consultant are provided with this application package.

Dissemination

To effect the widest dissemination of Media MashUp's results, primary dissemination will be through presentations at the annual American Library Association meetings and the Public Library Association's and Minnesota Library Association's annual conferences in 2010. The conference presentations will be offered to provide an opportunity for library staff from across the United States to learn about implementing innovative technology programming for youth. Staff from the project team and partner libraries will present the findings at additional regional and specialty library conferences throughout 2010/2011. Project findings will be submitted to relevant library publications, such as *Library Journal*, *Computers in Libraries*, *Library Technology Review*, so that dissemination is both wide and deep. Additionally, the project plans to publish "best practices in innovative technology programming." Publication will be completed in-house or through the American Library Association.

Sustainability

Once library staff are experienced using the relevant software programs, Media MashUp can be rotated into a library's set of summer youth programming or after school activities. Training for partners will include instruction on training additional staff or, more interestingly, youth. The Hennepin County Library uses this model at the North Regional and Central Minneapolis locations with success. This approach has the additional benefit of supporting positive youth development goals in addition to advancing the development of literacy skills. Sustainability costs are low once the initial training and teaching have been completed, requiring just staff time for training, marketing and implementation

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