

new media thinking :
a closer look



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new media thinking :
a closer look



7 documentary movies



new media thinking : *a closer look*

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preface

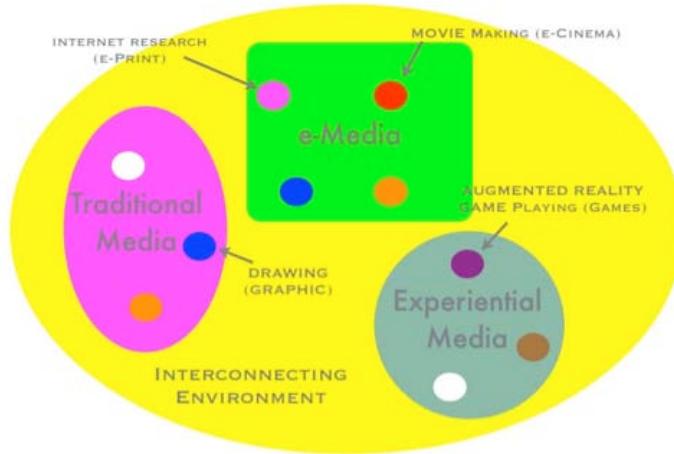
New media and digital kids are popular topics, as predictions and analyses about future technologies and future generations abound. Interestingly, most of these considerations are presented in text. This report adds seven movies to these text-based arguments, providing a closer and more direct look at the present environment. It brings the voices of young people and their adult mentors directly to the conversation, providing some basic observations of the use of digital media, and reporting on some initial efforts in prototype curriculum development.

You can view these movies on your television or computer from the attached DVD. If you want a copy of the electronic version of this report you can download it at www.newmediathinking.org. This website also provides direct access to these movies, as well as descriptions of current work and a more complete documentation of the project.

Ross School, in Ross, California, and the North Kenwood Oakland (NKO) School, in Chicago, Illinois, were primary collaborators on this investigatory project. The enthusiasm and imagination of the students and staff at each of these schools was overwhelming. I thank them for sharing their work, and look forward to continuing to explore new media together, illuminating how new media might be best engaged in productive academic contexts.

Arnowitz Hurn, LLP, of Sausalito, California, provided project management expertise for this exploration, as well as design and video production capabilities. Ben Bayol and Jay Rudeen were particularly critical to this effort. Kiki La Porta and Descom Studios in Ross, California, designed and produced this report. My thanks to my colleagues at both of these organizations for their imagination, participation and contributions.

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**new representations, new students,
new technologies,
and new opportunities for schools**

Digital media are changing the ways we communicate and how we perceive our worlds. They have increased the range of modes of representation we use casually -- from print to podcasts to movies to multimedia presentations -- and they have changed the range of audiences of our messages and the speed with which they are distributed.

Young people have readily engaged these tools, rapidly changing not only how they communicate but also how they live. The lives of **DIGITAL KIDS** are full of rich media, as they use cell phones and the web to stay connected with their peers, spend much of their lives immersed in video games and other electronic environments, and are otherwise fearless in their use of digital media in communicating and learning.

Yet these same young people who are facile with digital media are often ill at ease in school environments that are still fundamentally grounded in the world of the book and the traditional expressive domains of pen and paper. There is a basic mismatch between the worlds in which they thrive and those they engage in most classrooms. Though digital media have clear relevance to the academic world and the development of critical thinking, these media are typically limited to the world of entertainment and popular culture, and students are not often supported in moving their digital media skills deeply into the contexts of their academic work.

Some have likened the digital revolution to the invention of the printing press, as new modes of expression are emerging which are readily distributed via the interconnective tissue of the internet. This analysis leads to the suggestion that students should become literate in new media just as they have in print; language arts should be expanded to include movies and podcasts and other new expressive forms.

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DIGITAL KIDS >>

a closer look

I suggest that the adaptation to the digital age needs to go even deeper, that the digital revolution is even more profound. It is changing contemporary lifestyles at their core, fundamentally altering our sense of space and time. Our perceptions of our immediate surroundings change because we are so tightly connected to other times and places, and our modes of expression are greatly altered as we can now communicate publicly with media that are composed temporally and spatially in ways more like our speech than our texts.

In this way this digital revolution has much more in common with the invention of the airplane, the automobile, and the radio, in that it broadly affects our everyday lives and our sense of time and place. It is also very similar to the introduction of Cubism and Impressionism, in that our range of options in representing and communicating our ideas and observations are increasing well beyond traditional means. It also represents the *democratization* of information, as the means of production as well as consumption of information are widely accessible.

In this context, I suggest that there are five basic domains of representation and direct experience in which youth require mastery if they are to thrive in the 21st Century:

REAL SPACE. This is the face-to-face domain where neighborhoods and communities have been traditionally defined, where places are designed, and physical artifacts exist. New mapping techniques and electronic interconnections between individuals change our experience of everyday space. Real space and virtual spaces blend; the ethics established in each combine as well.

PAGE SPACE. This is the traditional medium of schools, where text and print are used to communicate important ideas and emotions. It also includes the two dimensional world of painting and drawing, areas now eliminated from most school experiences. Web-based media have changed this space drastically, offering *click-ability*, broad new audiences for publications, and new forms of expression (email, blogs, wikis). Many of the changes that fascinate us with the introduction of new media are in this rather traditional domain; in many ways these are simple changes compared to what the other domains offer.

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DIGITAL KIDS (7:11)

a closer look

SOUND TIME. Music and the spoken word exist in this temporal domain, where intonation, rhythm, beat, and progression are key elements. Digital media support the oral/aural culture in ways in which a print-centric culture never did.

SCREEN TIME. This is the world of slide shows, cinema, and interactive media where visual elements and sounds combine in temporal patterns. Composition across time becomes a new skill for most, as accessible digital tools introduce media-rich communications to individuals who are not media professionals.

CYBERSPACE. These responsive worlds, enabled by computers, let us transcend physical constraints and program new human activities. Video games, virtual realities, robotics, and other “if-then” explorations frame these opportunities. This is indeed the new frontier.

There are a number of recent technological advances that have changed the possibilities in each of these domains, and the variety of ways in which they interact. Notably,

- ▷ wireless access is becoming ubiquitous,
- ▷ podcasts are emerging as important distribution opportunities,
- ▷ Google is moving libraries to the web,
- ▷ broadband streaming video is on the horizon,
- ▷ digital photos are mainstream,
- ▷ digital devices are mobile,
- ▷ the videogame industry is booming,
- ▷ publications are being redefined, and
- ▷ content standards are developing.

Digital media are emerging as participatory media, encouraging broad based engagement. Media types are mixing and new genres are being formed. Click-ability has personalized viewer experience; networked capabilities now support broad social structures; and connectivity to the media is continuous, as individuals move between real space and virtual space, fluidly and all-the-time.

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DIGITAL KIDS (7:11)

a closer look

In addition, there is substantial innovation in the explorations of these domains. Many are making movies and distributing blogs. Collaborative sources like *wikipedias* are engaging individuals with wide-ranging perspectives and skills within new models of knowledge structures. Multi-tasking has become a central new skill as individuals sort from a wide range of information sources and approach complex tasks with digital supports.

The New Media Thinking (NMT) Project was established in 2005 to explore this situation and to suggest new curricular opportunities for students which might be provided electronically, in either in-school or out-of-school venues. The intent in this initial exploration was to become immersed in the phenomena of young people engaging new media, and to use this experience to drive future research and curricular design activities. This report and the seven NMT Movies linked to it provide documentation of these first explorations, including direct observations of the students and documentation of the use of prototype curricular software.

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youth engage new media enthusiastically

Initial observations of digital kids were made in two K-8 schools: Ross School, a suburban school near San Francisco; and NKO School, an urban school in Chicago. Ross School has benefited for a number of years from a solid technological environment available to all students and faculty. NKO has recently introduced a 1-1 laptop program for all middle school students and a digital media after-school program.

Initial observations of youth and digital media suggested:

- ▷ A fascination and excitement of youth with new media
- ▷ A major shift for youth from consumer to producer of media-rich materials
- ▷ A lack of experience and training for youth in traditional media-rich production
- ▷ A “hands-off” model by adults in developing new media competencies for youth
- ▷ A reluctance to combine media associated with entertainment in serious academic activities
- ▷ A lack of systematic activities to develop judgement of new media and fluency with it
- ▷ An eagerness by talented teachers to provide their students with new media experiences
- ▷ A lack of effective professional development, technology, and support for teachers

We documented a number of these observations in three documentary NMT Movies.

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MOVIE REPORT MAKING (10:40)

making movies is engaging for youth

>> MOVIE REPORT MAKING (10:40)

Students at both schools have incredible enthusiasm and technical facility in creating movies. Movie-making motivates the students to learn a topic and provides them a context in which to express very effectively what they have learned (**MOVIE REPORT MAKING**). However, it is also noteworthy that the movies themselves are not very sophisticated. Though they are compelling as young student work, their naivete is striking. There are a range of evident technical difficulties, the editing and shooting is uneven, and the storylines are not always crisp. To the credit of the students and teachers, the main ideas show through nonetheless; for the academic contexts in which students were doing their work, this focus is indeed the most important. Yet as one moves forward, systematic training in movie-making and a clear notion of the genre appropriate to different assignments are in order.

It was also noteworthy in the movie-making activities that students required a great deal of judgement and critical thinking to be successful. It was necessary to choose from among many visual resources available to them in putting together their stories, and to determine what sequences of images and interviews might provide them the highest impact. Interestingly, they did not seem conscious of the decisions they were making, and little support in this area was provided them by the adults involved.

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THE SPOKEN WORD: TECHNOLOGY AND LANGUAGE (7:43)

aural language can be enhanced with technology

>> THE SPOKEN WORD: TECHNOLOGY AND LANGUAGE (7:43)

In our observations of these two schools we were struck consistently by the strong emphasis on basic auditory communications -- talking and listening. Although there was clear emphasis on the development of skills in reading and writing, the fundamental method of communication in classrooms was spoken language. We also noted that many students were ineffective in articulating their ideas in spoken form, and therefore quite unable to fully participate in classroom exchanges.

A number of activities in each of the schools engaged digital technologies to enhance speaking abilities and skills in using digital media to represent ideas acoustically. In **THE SPOKEN WORD: TECHNOLOGY AND LANGUAGE** we document one program at each of the two schools that deliberately focuses on traditional speaking skills, using digital media. At NKO School we documented students in the after-school program who used digital technology to improve their delivery of "spoken word" poetry, and to add music and beats to their final work. At Ross School we documented a classroom activity that required students to use a software recording program to acoustically illustrate their responses to books they read, complementing written reports.

These very different approaches to include spoken language into youth programs hint at the wide range of ways in which auditory modes can be approached, and the importance of *SoundTime* capabilities which allow students to be effective in this domain. The NKO program provides an excellent example of how students can enhance verbal skills; the Ross program gives a sense of how important these skills can be in traditional classroom contexts.

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THE STUDIO ENVIRONMENT (3:50)

studio environments provide contexts for thoughtful work

>> THE STUDIO ENVIRONMENT (3:50)

Observing digital media in these two schools, one is continually impressed by the emphasis on hands-on construction, design, and active production that are required in engaging these media. Digital media invite individuals to participate and create. They also invite an active collaborative context, as the skills and perspectives of many individuals are brought together in digital media projects. This results in learning environments that are often noisy and somewhat chaotic, as the ingenuity and self-initiative of both youth and adults combine in unexpected ways. Environments are more like the studio environments of creative professionals than well-ordered traditional classrooms.

We documented these observations in **THE STUDIO ENVIRONMENT**. In this short movie we illustrate a traditional school environment that engages a studio approach in an art class at Ross School. Whereas most schools have all but eliminated art classes, choosing to put limited resources toward more academic activities, Ross School has maintained a broad focus on the arts. Ross students both create interesting art in their required art classes and they bring their visual skills and an imaginative collaborative approach to their academic work in the classroom.

In this movie we also show a contrasting studio-based environment in a robotics after-school program at NKO. In this program students actively analyze the requirements of robots to perform in obstacle courses, developing computer programs that allow the robots to be successful in meeting a range of challenges. In doing this, students develop their own initiative as well as collaborative and design capabilities, all skills that are typically not systematically developed in traditional classrooms. It will be interesting to note whether these skills transfer from these after-school experiences to classroom behaviors.

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three promising activity prototypes

These observations of spontaneous activities at Ross School and NKO School suggest a number of areas of opportunity for new media curriculum development. They provided a rich context that acknowledges the reality of classrooms as well as the voices of youth, a context in which to frame the design of a curriculum which might systematically and effectively develop new media fluencies for all youth.

The methodology we have chosen to develop this curriculum within is that of design research. Based on observations of youth engaging new media spontaneously, we have developed prototype activities. We have then engaged youth with these prototypes, observing their use to refine the prototypes as well as to better understand youth behavior.

The next section describes our first prototyping effort—one at the NKO School and two at Ross School—each of which is documented in a NMT Movie. We chose to begin our curriculum development activities with a consideration of *ScreenTime*, a prominent *new media* domain that both has a long history in *old media* as practiced by professionals (movie makers, graphic designers, researchers, and others), and that is already embraced by many youth in a range of contexts (including activities in a number of schools). We chose three prominent themes for initial sets of prototype activities—movie report making, multimedia composition, and the judgment of images. We created more than twenty activities (*Prototype Activities*, page 42~) in these areas, documenting the use of one activity with students for each theme in a NMT Movie. In our earlier movies we documented ongoing spontaneous activities of youth and teachers; in this set of movies we documented youth who had explicitly engaged one of our new media activity prototypes.

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<p>WHAT STORY DO YOU WANT TO TELL?</p>	 <p>Students at NKO middle school in Chicago videotaped their annual charity "Walk-A-Thon"</p>	 <p>Their footage was given to a professional editor, who created three different Walk-A-Thon videos</p>
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<p>The videos were the core of a Keynote activity on storytelling</p>	 <p>The NKO students watched the three videos</p>  <p>Then they shared their reactions to them</p>	
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WHAT STORY DO YOU WANT TO TELL? >>

movie making: focus on the story

>> WHAT STORY DO YOU WANT TO TELL? (6:18)

Everyone can now make a movie with accessible digital editing tools on computers. However, most spontaneously created movies are understandably rough and lacking in focus. What are the skills required to create a good movie? What is the training that youth should obtain to create effective and engaging movies? What are the basic movie communications skills that all youth might learn that may be different than those who are interested in becoming film makers?

Many programs focus on technical training, or training in technique. We chose instead to direct attention to the notion of story, the intent of the communication, and the process of developing cinematic storytelling systematically. We developed a number of prototype software activities to support these elements, including *What is your Story?*, *Preparing your Story*, *Story Layers*, *Critiquing* and *Storyboarding*. They were designed to provide youth with a context for technical and technique training.

A group of middle school students involved in movie making projects in the afterschool programs at the NKO School in Chicago tried a number of these activities. They reported that they were valuable. More impressively, the level of sophistication of the youth in talking about their own work increased after engaging these activities. We documented a small group of students in the NKO after-school digital video program discussing their experiences with our *What is Your Story?* prototype activity — an activity designed in the Apple Computer presentation application called **Keynote** which explored how different simple movie making techniques can be used to portray a single event in very different ways.

As described in our NMT Movie **WHAT STORY DO YOU WANT TO TELL?**, the activity encouraged students to appreciate how their own footage of a single event— a *Walkathon* fundraising event at their school— might be edited by a professional movie maker.

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WHAT STORY DO YOU WANT TO TELL? (6:18)

a closer look

The activity engaged the students, and they reported learning from it. In addition, they thought of this activity insofar as it could help them in their own movie making; they were enthusiastic to take what they learned and to apply it to their own movies. They were also reflective in considering just how many things they were looking forward to learning about in the movie-making domain. A few simple examples seemed very effective in extending student understanding of a range of possibilities.

Most adults, particularly teachers, who are not movie makers themselves, are impressed by the fact that students can make movies at all and are pleased by their initial efforts; the students, on the other hand, crave new training and insight to become better at the craft.

Our initial thought is that the training *everyone* needs in moviemaking is quite different from training needed by a potential professional movie maker; and, more important, that the kinds of movies appropriate to everyday general use in school are quite different than movies created principally for entertainment value, hence, our term *movie reports* rather than simply *movies*. The key is to develop genres of movie-making that are high in concept, expression, and communicability, and low in time required for craft. In this context, we have explored *clipmovies* (similar to *snapshots* in the still image domain); live action sequences that are assemblies of long clips, that require only very simple “in” and “out” editing and assembly.

A major take-away from this prototyping experience was that youth appreciate guidance and training. Also, a *top-down* approach to engaging youth with movie making opportunities seems to be effective at the middle school level. *Movie reports*—simplified movies that emphasize content and minimize technical requirements—promise to be very effective in communicating important ideas, where movie report training can be simple enough to be included in language arts curricula.

OPPORTUNITY: Develop a story-based software curriculum for movie report making in school language arts curricula that would be available on the web.

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	Activity Template	Text	Movies	Audio	Still Images
Provided by Adults	●		●	●	●
Generated by Students		●			

In the Beginning

	Activity Template	Text	Movies	Audio	Still Images
Provided by Adults					
Generated by Students		●	●	●	●

After Some Directed Experience

Preparing to Sail

- Make your notes on how
- Make notes on how
- How do the notes on

Read if this information is useful to you and

Put pictures of your explorers here



Preparing to Sail

Columbus was born to a

Queen Isabella and King



RANGE, HABITAT, & DISTRIBUTION

Place your text here. You can create a new slide if you need more room and add another picture if you have one.

After deleting this box, paste a map (except all your homework) that your bird lives. If you don't have one, paste a picture of your bird's habitat here.

RANGE, HABITAT, & DISTRIBUTION

The Passenger Pigeon needs large expanses of



Use a map showing where Passenger Pigeons live.

multimedia composition: a systematic approach

>>ACTIVITY TEMPLATES: BEGINNING WITH CONSTRAINTS (6:59)

Digital technologies allow us to combine multimedia elements— images and texts and movies and sounds— in an interactive environment. The challenge is to develop skills in this arena where there is little adult experience and a context that is rapidly changing.

How might youth be best introduced to a new medium in which everything seems possible? Can classroom environments support multimedia activities, which often take incredible amounts of time and technical training?

We had noticed across Grades 4-8 that student layout design skills were extremely uneven, and typically quite undeveloped. **Powerpoint** presentations, a common form of multimedia reports for students, were typically very text heavy and overwhelmed by complicated colors and inconsistent layouts. Though they look like they might be fun to produce, their overall communicability was frequently very low (not unlike the **Powerpoint** presentations used by adults in business and other presentation settings). Also the time commitment in class was typically high for these productions, as students seemed to require a great deal of time to choose just the right font and layout for their presentations. This constrained the number of teachers who chose these kinds of projects and the number of multimedia projects that classes might typically complete.

Our thought was that rather than encouraging students to play with all the bells and whistles that the technologies support, we might highly constrain their activities. The risk in this was that they could become easily bored. The opportunity was that they might systematically all gain particular skills and that the time spent on the craft elements of a project would decrease.

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ACTIVITY TEMPLATES: BEGINNING WITH CONSTRAINTS >>

a closer look

The core element we developed to experiment with this idea was an “activity template”. Just as Microsoft’s **Powerpoint** and Apple’s **Keynote** presentation packages include templates to facilitate presentation making, we developed activity templates to encourage youth to quickly and easily put together an effective multimedia presentation that showed knowledge of a particular content domain. Whereas the presentation packages have templates for different themes (classic silk, modern portfolio, vintage) and different page layouts (title pages, bullets, title and subtitle), we developed activity templates that included places where certain kinds of materials should be placed (for a presentation about explorers, an activity template might include “put the map of your explorer’s route here”, “list the three things your explorer is known for”, “put the movie of your explorer play here”).

To introduce a class of 4th graders at Ross School to multimedia report making we developed simple templates for them in Keynote for their Explorer Project. These report templates provided a context in which pairs of students composed a report that included text, images, music and movies.

In their first Explorer report, we provided images and music and movies (of their Explorer play, which we shot the week earlier) in Keynote from which they could choose; they “filled in” their own text on their assigned explorer in areas provided in the template. This approach kept the class focussed on the explorer content, and not distracted by choices of font, layout or composition. As documented in the NMT movie **ACTIVITY TEMPLATES: BEGINNING WITH CONSTRAINTS**, the students went from novices in Keynote to the authors of very handsome reports of which they were very proud within a single two hour lesson. They found the task engaging, and they actively discussed content related to their explorer with their teacher (rather than the technology, as is often the case with technology projects).

The enthusiasm of the teacher and students motivated them to use similar templates for class reports over the rest of the school year, including class reports on Birds, Ranchos and Insects. We provided them with *Keynote* activities to enhance their understanding of the *Keynote* tool

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ACTIVITY TEMPLATES: BEGINNING WITH CONSTRAINTS (6:59)

a closer look

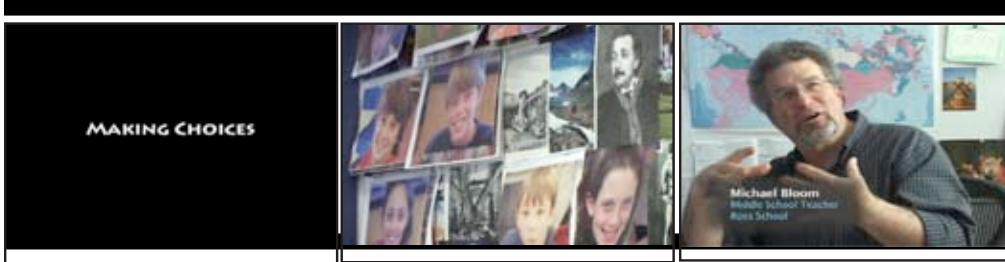
(*Keynote Training*), to select images (*Choosing an Image*), and to speak effectively (*Interviewing*). We also continued to provide them assistance in making clip movies of their own performances that they could use in their reports. The teacher created her own activity templates initially, although students soon took their own initiative and determined their own layouts (quite successfully!).

With each report, the constraints were relieved, as students organized their own reports, located their own images and made their own font and layout decisions. These reports were consistently coherent, well designed and effective in representing the topic area. And, the students gained confidence in creating multimedia reports that should serve them well in middle school. As one of the students said at the end of the class, “at first we didn’t know how to do anything, but now we know how to do most everything there is”.

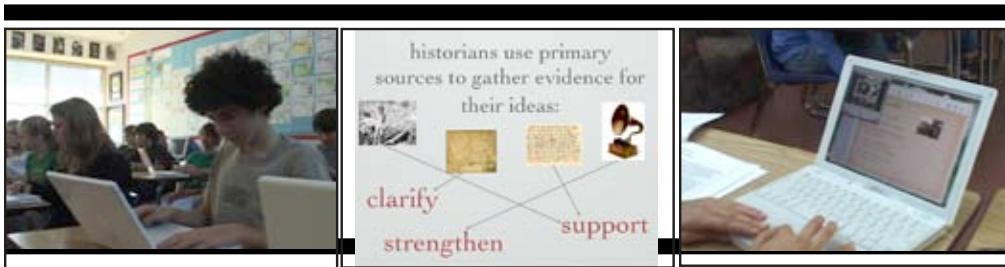
These observations suggest that multimedia can be engaged in classrooms systematically and efficiently, beginning with constraints and then systematically giving control to youth. Youth and teacher enthusiasm for this can be very positive, and there can be a continuing focus on the standard curricular topics as youth gain technology and media skills. For many youth in the 4th grade who continue to have difficulty with text, these media representations provide an important way into content and a good way to communicate their understanding of a topic.

OPPORTUNITIES: Extend the use of “content templates” to other content areas and to other grades. Develop a generally available software curriculum in this area to be distributed on the web.

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MAKING CHOICES >>

judgement: choosing images

>> MAKING CHOICES (4:49)

We have been long afraid of the effects of images on our youth, particularly in terms of television advertising and pop culture. The internet offers a potentially even larger barrage of manipulative images. However, at the same time, it offers source images that youth can choose amongst in order to make their own arguments, images that might provide them with the very experiences needed to increase their evaluations of others' images.

Will youth readily engage the basic idea of critically evaluating images? What contexts might encourage them to think about the truthfulness of images and their role in strengthening arguments and clarifying ideas?

Whereas most activities in media analysis address the images of popular culture, daily journalism and advertising, we considered this topic within a curricular context. We worked with an 8th grade history class at Ross School where the students were assigned to create a report on an event in early 19th Century America. The NMT Movie **MAKING CHOICES** documents our prototyping efforts.

When we began to work with them, these eighth grade students had completed a written history report on a topic in early 19th Century American History (Abolitionists, the Mexican American War, Andrew Jackson, etc.). We then worked with them to create multimedia reports on these same topics in Keynote, providing them with an introduction to primary source images, with advice about the importance of consciously selecting images, and with methods for listing their image references. Our intention was to generally enhance their ability to make judgments in their choice of media, the hope being that enhancing their judgment would be important not only in creating these reports but also in their later evaluation of images presented to them.

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Students mastered the basic techniques of downloading images and movies quickly, as well as the mechanics of using the Keynote presentation package. It was less clear just how effective they became in judging their images. Part of this was due to a lack of information about most historical images. There were few descriptive notes attached to most images vis-a-vis what they represented, where they were recorded/made (photos and drawings), what the historical context was for the image, and what other related or oppositional images existed. Like historians, the students needed to infer many things from each image, based on whatever information was connected to the image or on information they could find which was related to it. As image libraries develop, and include meta-data tags, these problems should be reduced.

It was also the case that students were not very engaged by the basic task of judging images. They were conscientious in fulfilling the assignment, finding images relevant to their topic, and using them in a multimedia report which they presented to the entire class. They did not, however, have the inclination to pause and ask questions about the images they found or about the impact of different images on their presentations. In general, they didn't challenge the information available to them, nor did they feel comfortable in finding a number of meanings for individual images. Where we had hoped that judging images would be an entry to the more general challenge of making critical judgments, we found that their fundamental lack of critical faculties hindered their capabilities in the image domain.

In our interviews with the classroom teacher, he reminded us that most adults do not effectively make critical judgments, and that the goal of an exercise like this was to launch students toward critical reasoning. As they grew older, he suggested, it was possible that they would take their exposure to the basic ideas of judgment and questioning from this class, and develop their own critical faculties. This was the hope. Conversations with other teachers suggested a general agreement with this position.

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The difficulty, if this is true, is that new media require that young people be very aware of the inferences made with images if they are to be in control of these new media (rather than be controlled by them). It is unrealistic to think that a single exercise in 8th grade will substantially develop critical viewing skills; however, the lack of success in this activity highlights the importance of developing a large number of activities that focus attention on the general importance of critical judgment, and the awareness of communications in general and in interaction with new media in particular.

Youth are not readily critical of information they find on the internet, and are not readily engaged by the task of questioning the import of images. Though they have the technical capability to readily create electronic reports, and find this engaging, they are interested in gathering enough information to finish classroom projects not to necessarily think about the issues that source imagery raises. It is not clear whether this traditional problem is exacerbated with electronic media or if these media offer a new approach to this problem.

OPPORTUNITIES: Develop an elementary school level curriculum that encourages very young students to challenge ideas, emphasizing practice materials developed in the context of media-rich internet sources.

in sum . . .

Few argue that new media will not be important for the future. Most agree that digital media are important in the realms of academic understanding and self expression, and that the important complex thinking skills that digitally proficient kids bring to the learning enterprise should be taken advantage of and made available to all. Yet there is little agreement past this point as to what should be done; little systematic or sustainable work has been done. There is simply not a unified sensibility about how to proceed, nor many models of success that can be emulated, nor even enough individuals aware of the issues involved in schools to debate the related issues.

In an attempt to move this debate along as well as a range of plans for action, we have documented in our NMT Movies a number of observations of students engaging new media in school and afterschool programs. Our observations are intended to engage a broader audience in dialogs about how all students can be provided access to digital media skills (**DIGITAL KIDS**). They are also designed to highlight a few key observations about perspectives of digital kids, including

- ▷ the potential of movie report making in academic contexts (**MOVIE REPORT MAKING**), and the range of new media forms appropriate to this setting,
- ▷ the centrality of the oral culture and its relationship to new technologies (**THE SPOKEN WORD: TECHNOLOGY AND LANGUAGE**), and
- ▷ the importance of studios to support production-oriented design approaches (**THE STUDIO ENVIRONMENT**).

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We have also documented three sets of prototype activities to encourage new media fluency.

We have:

- ▷ developed some promising activities which facilitate effective movie report making, encouraging students to think hard about their intentions and the palette of opportunities available for simple movie making that focuses on content **(WHAT STORY DO YOU WANT TO TELL?)**,
- ▷ documented how a systematic set of activities that slowly loosen the constraints of production tasks can effectively provide youth with experiences in multimedia composition **(ACTIVITY TEMPLATES: BEGINNING WITH CONSTRAINTS)**, and
- ▷ illustrated that the introduction of the notion of judgment of images is not as straightforward as one might hope **(MAKING CHOICES)**.

In these initial hands-on observations and prototypes, we have gained an appreciation for the realities of the classroom, and the perspectives of young people. We have been able to compare our ideas about new media and the “buzz” about this topic with what we observe directly. We have come to appreciate the challenge that schools have in embracing the changes introduced by new media, realizing the need for new institutions that might be developed to assist schools (or substitute for schools) in supporting the development of new media fluencies for all students.

In addition, we have been convinced that a hands-off approach to the development of new media fluencies for youth is ineffective. Though youth are enthusiastic and quick to learn technical skills, they need systematic guidance in their engagement with new media. Because of the new aspects of new media there is not a natural enculturation process now available, as most adults are ill-equipped themselves in these domains. New media curricula become key for the mastery of new digital opportunities and tools by youth and adults alike.

a closer look

The NMT Project is designed to find some basic stable elements amidst all this exciting uncertainty, to observe spontaneous experiments with digital media and to then identify and support core digital competencies that are critical for everyone to master. This first phase of the project has identified three such competencies --- movie making, multimedia composition and critical judgement of images --- that are promising for activity development with youth. They are all involved in the self expression of youth, and quite consistent with the general language arts curricula in schools. More youth observations and prototype development can produce training materials in these areas.

These "ScreenTime" domains constitute many of the current adoptions of digital technologies. However though they arguably represent much of the current activity and mainstream focus in the area of new media literacies, there are many other domains of digital media that invite attention, and will become the focus of future New Media Thinking programs as well. These include design, mobile connectivity, global collaboration, modeling and simulation, and programming and robotics. "Soundtime", "RealSpace" and "CyberSpace" are all critical domains for mastery in this digital age.

The challenge is to continue a process of observation, documentation, and prototype development which can move quickly enough so that the materials are created and distributed before they are obsolete. For the only constant in the area of new media is change.

new media thinking

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new media thinking prototype activities

movie making

MOVIE1: What is your Story?



This demonstration illustrates the importance of “finding your story” as you engage a media production. It uses as illustration 3 different movies of the same event, including interviews with the movie maker. It is designed as a teacher led classroom presentation and discussion.

MOVIE2: Preparing Your Story



This hands-on activity gives students the opportunity to “storyboard” their ideas for their Walkathon movies, first in text and then as a set of sequenced “movie clips”. The framework for this is an “activity template” that allows them to drag and drop media elements into their presentations.

MOVIE3: Documentation



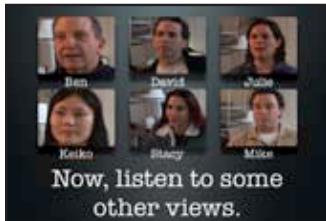
This essay challenges students to think about the relationship between “reality” and media representations. In a light hearted way it suggests that media do not mirror reality but serve a different function; the intent is to encourage students to think about how they might document events in a movie.

new media thinking

movie making

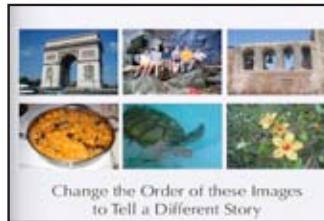
multimedia

MOVIE5: Critique for Feedback



This demonstration provides students with a sense of how critiques might be used as feedback in the constant process of improving their movies. It uses as an example the "Bicycle Movie" from Movies1, to show the range of very different comments viewers bring forth.

MOVIE6: Storyboarding



This hands-on activity gives students experience in telling stories based on given image sequences. It then introduces them to basic storyboard techniques which allow them to plan the sequence of their stories, trying different orders to accomplish different effects.

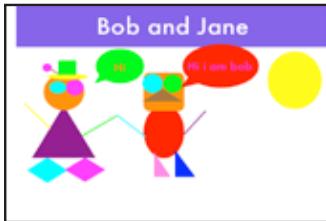
MMEDIA1: Explorer Report



This template was provided by a 4th grade teacher, Ms. Q, to frame a student assignment exploring the Explorers. It includes instructions for including video, stills, sounds and text. It is designed to keep the student focus on the Explorers rather than the report design. It provides an example that can be used in a wide range of report types.

multimedia

MMEDIA2: Keynote Training



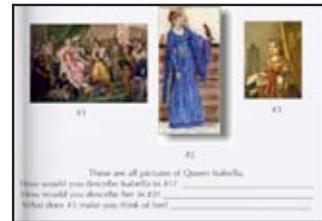
This template provides users with basic familiarity with the functions of the Keynote program, giving them hands-on experience in using graphical tools, manipulating text, inserting videos, stills and sounds, as well as a basic understanding of transitions and builds.

MMEDIA3: Interviewing Technique



One important source of video clips is student produced materials, including interviews. And yet many students are uncomfortable expressing themselves orally. This demonstration provides students with examples of different interviews which illustrate effective and not so effective articulations.

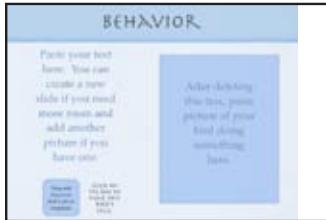
MMEDIA4: Choosing an Image



This hands-on activity gives students experience in telling stories based on given image sequences. It then introduces them to basic storyboard techniques which allow them to plan the sequence of their stories, trying different orders to accomplish different effects.

multimedia

MMEDIA7:
Bird Reports



This template is a second one developed by fourth grade teacher Ms.Q, this time for a classroom report on birds. It includes distinct sections for different aspects of an endangered bird (eg behavior, nesting), as well as a detailed section for a bibliography.

JUDG1:
French Riots



Two very critical element in considering current events is a sense of audience and of different points of view. This current event template, illustrated by the example of the French Riots in November 2006, provides areas to link to different web resources. It also includes sections where two different classrooms can represent their opinions and then share them.

JUDG2:
Primary Source Imagery



One very important source of information for historians is primary source images. Each image provides clues to the period from which it comes. This demonstration provides students with experience looking carefully at historical imagery.

a closer look

new media thinking



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a personal epilogue



I worked at Apple Computer, Inc. between 1984 and 1998. My goal during these years was to launch media-rich computing for learning and everyday use. As a cognitive psychologist interested in visual representations and spatial understanding, I had been involved in a number of research projects which experimented with emerging new visual technologies. I hoped that in joining Apple Computer, Inc., I might be able to make these experiences more generally accessible.

In 1986, as a part of Apple's Advanced Technology Group, I led a collaboration between the National Geographic Society, Lucasfilm, Ltd., and Apple Computer, Inc, which resulted in "GTV: Geography Television" (funded in part by the California State Department of Education), a product which illustrated how the new convergence of technology, learning, imagery, entertainment and publishing might engage youth in new and important ways.

In 1987 Bill Atkinson completed his development of Wildcard, introduced by Apple as "HyperCard", included on every computer. This tool introduced hyperlinking to the masses, allowed pictures to be engaged as major elements in displays and offered the opportunity to launch movies (from videodiscs). It highlighted an accessible, content-centric, authoring environment, as well as a playback environment.

In 1987 in San Francisco, Sueann Ambron and I founded the Apple Multimedia Lab in an old garage that also housed the Moscow Teleport, which seeded Multimedia Gulch in San Francisco (which later housed the dot com boom). We began with three contractors—Fabrice Florin, Steve Gano, and Margo Nanny—and focused our attention on scouting the multimedia landscape, showing what was possible with Hypercard, and establishing collaborations with publishers and content partners.

new media thinking

Soon the Lab was exploding with new talents and hundreds of curious visitors. Graphic designers, video producers, software programmers, educators, and publishers began to merge their skills; new genres of media and interfaces emerged. Schools and teachers began to embrace Hypercard, as did universities, corporate training departments, and hobbyists.

These experiments and experiences drove the development of a wide range of activities: the design of the QuickTime format to handle video digitally; arguments to the FCC to reserve wireless bandwidth for citizen - produced materials; the addition of CD drives in all computers; the design of a nonlinear editing system to produce GTV; the publishing of two edited volumes introducing the convergences of multimedia; and more. The enthusiasm and innovation was palpable, and the future for learning looked bright.

Twenty years later many of the innovations of the early multimedia days are now taken for granted. Click-ability, accessible movies, coherent content-focused interfaces and remix are everyday. The acknowledgment that computing is key for self-expression and communication is widespread. Processor speeds are fantastic, and new tools and techniques for media manipulation are powerful, expressive, and integrated. Men have learned to type, youth to text message, and terrorists to engage distributed processing to unite their constituencies.

In the last twenty years, ways of doing business have also changed drastically, as business people are connected 24-7 with each other and with their customers via the web. Entertainment abounds with technological innovation, as creativity in special effects and methods for content delivery seem to multiply daily. Print media and television are forever changed as the role of the journalist has been challenged to its core. Digital kids have engaged lives full of music, social connectivity, videogames, and online searches.

Yet what about learning? This is quite a different story. An entire generation has graduated from high school since our early visions were established (including my children), and yet nothing much has changed for most youth in their scholastic/learning environments.

a closer look

Computers have come and gone from classrooms as technological advances have made old machines obsolete, while many obsolete models of classroom learning have been retained. Schools have been connected to the internet with the hope that something good will happen, and often it has not.

School boards have argued about what brand of computers to buy, and technology consultants have dictated what kinds of word processors are best, but few have talked about the cognitive and cultural reasons to engage computers.

Teachers have struggled to figure out how to grade collaboration and if spell-checkers and cutting and pasting from the internet should be allowed in class, while few have questioned how actual learning might be changed in this new environment.

Administrators have wondered how time spent on complex computer projects engaging student initiative would help students do well on standardized tests, while few have reorganized their schools for the new globally connected world in which they find themselves.

In the best case, a number of schools have overcome incredible obstacles to master the technical infrastructure and a few extremely talented teachers and well-organized schools have changed their ways of doing business. In the worst case, young people are being kept from gaining skills for the 21st century by school systems that, while typically very well meaning, are frozen by the budgetary and technical demands of new technologies, and by a lack of imagination about these new modes of expression.

The glitz of new technologies has blinded most parents and educators to the fundamental opportunities they might provide for learning. As Doug Engelbart said so many years ago, it is not computers for computers' sake; it is about augmenting the human intellect. It is a lifestyle change, a paradigm shift, a new way to view and describe the world. It is about forming intellectual

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Apple Multimedia Lab 1988



Youngest graduates from high school 2005

communities and maximizing the group IQ. It is about considering many different views on a single topic. It is about judgment and editorial and individual initiative.

It is not surprising, really, that new technologies themselves do not a learning revolution make. There is work to be done to effect the full exploitation of new media in learning environments.

And so I am back at it. I have established the New Media Thinking (NMT) Project as a context to “give it another go”, to help provide learners with the experiences they will need to flourish in the next decades. My intent is to amplify student voices, and to listen to them carefully as I develop activities that might enhance their capabilities --- in technical competence, in composition techniques and in the ability to understand and express important ideas. By observing carefully, inventing imaginatively, and collaborating sensibly, I hope to help to create such things as:

- ▷ “Montessori Materials” for the digital age,
- ▷ Whole School Models (K-8) of systematic adoption of new media across the curriculum,
- ▷ Out-of-school centers for digital media attached to museums and other informal learning organizations,
- ▷ A virtual environment to support new media fluency development,
- ▷ Collaborations with youth and industry partners to co-invent new media possibilities,
- ▷ On-line activity templates for general academic use, and
- ▷ A New Media Thinking Collaborative that creates large numbers of learning objects for new media fluency development at scale.

There a range of possible next steps that are exciting. Nice to be back in the game.

Kristina Hooper Woolsey
September 2006

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