Challenges of Film, Video, and New Media Preservation

Howard Besser, Director
Moving Image Archiving & Preservation Program
NYU’s Tisch School of the Arts
http://www.nyu.edu/tisch/preservation
Challenges of Film, Video, and New Media Preservation

• What are these strange things?
• Why are they important?
• Who has them?
• What problems do they cause?
• Who collects them (and how)?
• New approaches to dealing with the problem
What are these strange things?
Old Film Formats
Old Video Formats
Metal sound recording Disks

Casa Rui Barbosa
Cicarelli Responde o Bloqueio do YouTube

Rate: ★★★★★ Views: 227,960

More From: ovelho

Related Videos

Daniela Cicarelli e o na 01:26 From: pm Views: 754,062
Cicarelli e o na 00:58 From: tel Views: 382,340
Paparazzo flag 01:58 From: msi Views: 2,532,924
Cicarelli praia
CDs & DVDs
Public TV Digital Storage
Ethnographic Documentation

Bumba-Meu-Boi
ELO: Uncle Buddy’s Funhouse
ECI - Hole in Space (1980)
ECI - Imagespace (1977?)
Gates Project 1992 (3D ground)
Why are they important?
Images with Sound are critical to understanding our cultural heritage

- Both fiction & documentaries shape any time period’s views of the past (Moses & 10 Commandments; Cleopatra; Caesar’s Rome; 1940s urban US; Hitler, Holocaust, WWII; Vietnam War, …)
- We are shaped by the cultural icons of our childhood (Leave it to Beaver, Lassie, James Bond, police shows, Mickey Mouse, Road Runner, …)
- We are also shaped by the advertisements, industrial, and educational films of our childhood (Maytag repairman, How to be a good homemaker, …)
- To understand our time period, people in the future will need to have access to the cultural artifacts of our time (imagine trying to understand 1950s and 1960s gender dynamics without pop cultural views of the family)
Duck and Cover

Sponsor: U.S. Federal Civil Defense Administration, 1951

Downloaded 2002 from Prelinger Archive  http://www.archive.org/

http://www.nyu.edu/tisch/preservation/talks/200712_educa
use/
TV History
TV History
TV History
Who has them?
Many organizations have film and video

- Historic collections often have old films of a city, of buildings, of people at another time period
- Personal Paper collections have “home movies” of famous people, video documentation of experiments, anthropological films of other cultures
- Special Collections have oral/video histories, recordings of professional association meetings, video interviews. …
- Government collections have films documenting government-funded projects (bridges, roads, WPA), films and videos commissioned by government agencies (AIDS prevention, smoking prevention), recordings of legislative meetings, …
Hampton Collection
Hampton Collection (interviews)
What problems do they cause?

- Decay, Fragility
- Obsolescence of technology to play it
- Reformatting
- Copyright
Film Decay  
(LC Dayton)
Film decay (Academy)
1960s Films Faded to Pink

(VidiPax)
Other Deterioration-film
Lost Tapes, Found Sounds Exhibition
Harold Schellinex

Besser-Educause Live Webcast
12/19/07
Lost Tapes, Found Sounds Exhibition
Harold Schellinex
Monitoring & Detecting Acid (NYU Library Internship)
Even conventional Moving Image Carriers are highly unstable, and an enormous # have already disappeared

- 50% of all titles produced before 1950 have vanished (approximate number as of late 1970s)
- This reflects full-length features; survival rates are much lower for other types (studio newsreels, shorts, docs, independent, …), and these “orphans” are particularly in peril
- Fewer than 20% of features from 1920s survive in complete form; survival rates of 1910s is <10% (& none of these are negatives)

Obsolete or deteriorated Physical Carriers
Obsolete Carriers & Info Techn
Obsolete Carriers
Obsolete Carrier viewing Technology?
## Old Video Formats

<table>
<thead>
<tr>
<th>Year</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>1956</td>
<td>2&quot; Quad</td>
</tr>
<tr>
<td>1962</td>
<td>2&quot; Helical Ampex VR-1500</td>
</tr>
<tr>
<td>1962</td>
<td>2&quot; Sony Helical SV-201</td>
</tr>
<tr>
<td>1962</td>
<td>Macthronics MVC-10</td>
</tr>
<tr>
<td>1963</td>
<td>1&quot; PI-3V</td>
</tr>
<tr>
<td>1964</td>
<td>1&quot; EV-200</td>
</tr>
<tr>
<td>1965</td>
<td>1&quot; EL3400</td>
</tr>
<tr>
<td>1965</td>
<td>1&quot; SMPTE Type A</td>
</tr>
<tr>
<td>1965</td>
<td>1/2&quot; – CV</td>
</tr>
<tr>
<td>1965</td>
<td>VTR150</td>
</tr>
<tr>
<td>1967</td>
<td>1&quot; IVC-700/800/900</td>
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<tr>
<td>1967</td>
<td>VTR600</td>
</tr>
<tr>
<td>1969</td>
<td>1/2&quot; EIAJ Type 1</td>
</tr>
<tr>
<td>1969</td>
<td>1/4&quot; Akai</td>
</tr>
<tr>
<td>1970</td>
<td>1/2&quot; VCR</td>
</tr>
<tr>
<td>1971</td>
<td>3/4&quot; U-Matic</td>
</tr>
<tr>
<td>1971</td>
<td>EIAJ Cartridge</td>
</tr>
<tr>
<td>1972</td>
<td>Cartvision</td>
</tr>
<tr>
<td>1972</td>
<td>V-Cord, V-Cord II</td>
</tr>
<tr>
<td>1973</td>
<td>2&quot; Helical IVC-9000</td>
</tr>
<tr>
<td>1975</td>
<td>1&quot; SMPTE Type B</td>
</tr>
<tr>
<td>1975</td>
<td>Betamax/Super/HB</td>
</tr>
<tr>
<td>1976</td>
<td>1&quot; Helical BVH-1000</td>
</tr>
<tr>
<td>1976</td>
<td>VHS</td>
</tr>
<tr>
<td>1976</td>
<td>VX</td>
</tr>
<tr>
<td>1978</td>
<td>1&quot; SMPTE Type C</td>
</tr>
<tr>
<td>1979</td>
<td>1/2&quot; V2000</td>
</tr>
<tr>
<td>1981</td>
<td>1/2&quot; Hawkeye/Recam/M</td>
</tr>
<tr>
<td>1982</td>
<td>Betacam</td>
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<tr>
<td>1984</td>
<td>8mm</td>
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<tr>
<td>1984</td>
<td>CVC</td>
</tr>
<tr>
<td>1984</td>
<td>HDV1000</td>
</tr>
<tr>
<td>1985</td>
<td>M-Ii</td>
</tr>
<tr>
<td>1986</td>
<td>3/4&quot; U-Matic SP</td>
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<tr>
<td>1986</td>
<td>Betacam SP</td>
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<tr>
<td>1986</td>
<td>D1</td>
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<tr>
<td>1987</td>
<td>S-VHS</td>
</tr>
<tr>
<td>1988</td>
<td>D2</td>
</tr>
<tr>
<td>1988</td>
<td>ED-Beta</td>
</tr>
<tr>
<td>1988</td>
<td>HDD1000</td>
</tr>
<tr>
<td>1989</td>
<td>Hi8</td>
</tr>
<tr>
<td>1990</td>
<td>D3</td>
</tr>
<tr>
<td>1990</td>
<td>UniHi</td>
</tr>
<tr>
<td>1992</td>
<td>DCT</td>
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<tr>
<td>1993</td>
<td>Digital Betacam</td>
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<tr>
<td>1994</td>
<td>D5</td>
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<tr>
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<td>D6</td>
</tr>
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<td>1995</td>
<td>DV</td>
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<tr>
<td>1995</td>
<td>DVCAM</td>
</tr>
<tr>
<td>1995</td>
<td>DVCPR0/D7</td>
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<tr>
<td>1995</td>
<td>W-VHS</td>
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<td>1996</td>
<td>BETACAM SX</td>
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<td>1996</td>
<td>HD D5</td>
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<td>1997</td>
<td>HDCAM</td>
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<td>1998</td>
<td>DVCPR0 50</td>
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<td>1998</td>
<td>DVCPR0 50/P</td>
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<td>1999</td>
<td>Digital-8</td>
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<td>2000</td>
<td>D9 HD</td>
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<td>2000</td>
<td>DVC PRO HD</td>
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<td>2000</td>
<td>MPEG IMX</td>
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### List of old Audio Formats

<table>
<thead>
<tr>
<th>Format</th>
<th>Description</th>
<th>Years in Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wax Cylinder Records</td>
<td>2- or 4-minute formats, wax or wax compound</td>
<td>1888– 1929</td>
</tr>
<tr>
<td>Recordable Disc Records (Direct or Acetate Discs)</td>
<td>7”, 12”, or 16”, recorded at 33 or 78 revolutions per minute (rpm). Generally vinyl on a paper, glass or metal base</td>
<td>1929– 1960s</td>
</tr>
<tr>
<td>Recording Wire</td>
<td>Spooled wire, usually in 15- to 30- minute lengths, one direction only</td>
<td>c. 1945– 1955</td>
</tr>
<tr>
<td>Open reel recording tape</td>
<td>1/4”– 2”, 3”– 10 1/2&quot; reels, 1 7/8– 30 inches per second (IPS) speeds</td>
<td>c. 1945– Present</td>
</tr>
<tr>
<td>Compact Cassette</td>
<td>1/8” tape in hard case, 1 7/8 IPS format</td>
<td>1965– Present</td>
</tr>
<tr>
<td>Microcassette/Minicassette</td>
<td>Very small 2-4 cm cassette tapes</td>
<td>1977– Present</td>
</tr>
<tr>
<td>Digital disk, MP3, and other digital recorders</td>
<td>Audio recorded directly in digital files to optical disks or internal hard drives</td>
<td>2000– Present</td>
</tr>
</tbody>
</table>
Sometimes we have to reformat because of technology changes

- We don’t have video players to play tapes made 25 years ago
- We don’t have 8-inch floppy disk drives, syquest drives, zip drives
- We don’t have Windows 3 operating systems

- But this is something that conservators have always dealt with…
But Reformatting can have its downside

• Authenticity issues

• User behaviors (newspaper, book, video game, …)

• Users mistaking the reformatted work for the original
Critiques of Reformatting

Mainly User Behaviors

- Can’t view outside the library
- Only sequential access
- Viewing and studying is awkward
- ...
But if we don’t Reformat, we totally lose many of our audiovisual works
We sometimes have no control over the technologies we use

- Environmental--Government mandates to discontinue use of halon gas as fire extinguisher
- Economic--Companies in economic trouble will cease manufacturing technologies that aren’t hugely profitable
  - Ilford (2004 bankruptcy)
  - Agfa (2005 bankruptcy)
  - Kodak-
Kodak stops making some films

KODAK PROFESSIONAL Technical Pan Film

—Notice—
Discontinuance of KODAK PROFESSIONAL Technical Pan Film

KODAK PROFESSIONAL Technical Pan Film is being discontinued due to steadily declining demand over the recent years. Changes in product components and our manufacturing processes make it impractical to continue to support this product at its current low levels.

The last Tech Pan coating was several years ago. Since that time, the old coating room has been shut down, the gels used in the product formulation have become obsolete, and we no longer manufacture the ESTAR support on which the 35 mm product was coated. There would be considerable cost to recreate the product, with no guarantee that it would look and act the same as the Tech Pan Film of old.

Technical Pan Film will continue to be available until the existing inventory has been depleted.

While there is no direct replacement for Tech Pan Film, you may find KODAK PROFESSIONAL T-MAX 100 Film in combination with specific B&W Developers to be a viable alternative for some applications.
Kodak stops making some papers

Eastman's Online Genealogy Newsletter
A Free Genealogy Newsletter, Now Published Daily!

June 18, 2005

Kodak Discontinues Black-and-White Photo Paper

Ending a century-old tradition, Eastman Kodak Co will soon stop making black-and-white photographic paper. As the industry shifts rapidly from chemical-based to digital imaging, demand for black and white paper is declining about 25 per cent annually, Kodak spokesman David Lanzillo said.

In April, Kodak posted a first-quarter loss of $142 million, citing a steady slide in revenues from film and other chemical-based businesses and higher-than-expected costs to cover job cuts. Other companies, led by Ilford Imaging of Britain, still make black-and-white photographic paper. However, these other companies have their own financial problems. Ilford went into bankruptcy last year, emerging this year after a management-led buyout. Germany's AgfaPhoto GmbH filed for bankruptcy last month.

While it may seem a shame, this is an unstoppable trend: film is disappearing and digital imaging is rapidly replacing it. Should a genealogist care? Well, think about this:

For years genealogists have depended upon microfilm. In fact, many librarians and archivists insist that documents should be copied onto microfilm, not digital...
Basic Economics

• The conservation community is not large enough a purchaser to sustain many types of manufacturing and technological production

• Many of the things we use are based upon larger production runs for larger (and richer) communities

• Therefore, we need to be periodically monitoring the economic health of our suppliers, and be aware of long-term trends affecting their other customers
Possible endless need for reformatting implies

- Possible loss with each generation
- Requires managed environment
- Can lead to © violations-
Preservation steps can raise serious Copyright Issues

- Refreshing onto new physical strata can violate ©
- Migrating raises “moral rights” issues
- Emulation often requires reverse engineering of software
- Underlying rights-
Underlying Rights Examples

• In recording an interview, a radio is playing in the background. The owner of the song could sue the person recording this and the archive for copying this as a © violation, even though it is only a very small part of the background.

• In a videotaped interview, a television or website is in the background. The owner of the television program or website could sue both the person recording and the archive.

• In documentary photographs or video on a street, the owner of a background advertising poster or product or car manufacturer could sue the recorder and the archive.

• When you capture a web page that displays a copyrighted photo by linking to it (not actually copying it), you may be violating © law.

• New laws (“broadcast flag”) may cause all recording devices to immediately shut off if they detect a digital copyrighted song or television signal in the background.
Underlying Rights
A film/video of 1950s home life should not have the tv on
Underlying Rights

Street video should avoid recording music
Background:

Underlying Rights

- Archives may have a right to the whole but not have a right to the components.
- Third party information, underlying rights are often granted for a limited time or a particular kind of use, or a particular geographic region. This is particularly salient for multimedia works.
- *Eyes on the Prize, It’s a Wonderful Life, photos in Barbara Kruger works-*
Kruger’s Untitled 1990 (It’s a small world but not if you have to clean it)

underlying image from Thomas Hoepker’s “Charlotte as seen by Thomas,”
Originally published in German photography magazine Foto Prisma in 1960
What Interpares looked at

http://besser.tsoa.nyu.edu/howard/Papers/interpares-copyright.pdf

- Problems caused by Underlying Rights
- Legality of Refreshing/Migration/Emulation
- A Preservation right to copy
- Dangers involved in infringement
- Jurisdiction issues
Distance Learning: Violating ©
Format Changes
Various Formats Intermixed

(Hampton)
Lots of Formats; Hard to Store
Plain DVDs are no longer the latest format
Who collects them (and how)?

- Who is collecting representations of changes in how we teach?
- Who is collecting documentation of what life is like on our campuses?
- Is anyone being comprehensive in their collecting?
UCLA Student Tasered by Police in Library
iTunes-U
iTunes-U UCB
iTunes-U UCB Oral Histories

Regional Oral History Office

Interviews with History Makers from ROHO

DESCRIPTION

The Regional Oral History Office is a research program of the University of California, Berkeley, working within The Bancroft Library.

ROHO conducts, teaches, analyzes, and archives oral and video history documents in a broad variety of subject areas critical to the history of California and the United States.

ROHO provides a forum for students and scholars working with oral sources to deepen the quality of their research and to engage with the theory, methodology, and meaning of individual testimony and social memory.

The interviews are archived and constitute primary documents with people who made history - and who were a part of history - all realms of human life, for example in public policy, business, social movements, academic and community life, politics, the arts, science and technology, among others.

<table>
<thead>
<tr>
<th>A Name</th>
<th>Time</th>
<th>Artist</th>
<th>Album</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4:40</td>
<td>Charles H. Townes, et al.</td>
<td>Science, Medicine, etc.</td>
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<td>2</td>
<td>20:26</td>
<td>Troy Duster, Russ E.</td>
<td>African American Family and History</td>
<td>Free</td>
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<tr>
<td>3</td>
<td>20:26</td>
<td>Troy Duster, Russ E.</td>
<td>African American Family and History</td>
<td>Free</td>
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<td>4</td>
<td>19:23</td>
<td>Mary Newson, Phyllis May</td>
<td>Rosie the Riveter/War Comes</td>
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<td>5</td>
<td>19:16</td>
<td>Mary Newson, Phyllis May</td>
<td>Rosie the Riveter/War Comes</td>
<td>Free</td>
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iTunes-U UCB Campus

Poetry
iTunes-U UCB Art & Technology Events

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<thead>
<tr>
<th>Name</th>
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<tr>
<td>Can Soulful Music Survive Digital...</td>
<td>1:01:20</td>
<td>Jaron Lanier</td>
<td>Art, Technology, &amp; ...</td>
<td>Free</td>
<td>GET</td>
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<td>Ephemeral Gumboots: Dancing a...</td>
<td>3:34:40</td>
<td>Cobi van Tonder</td>
<td>Art, Technology, &amp; ...</td>
<td>Free</td>
<td>GET</td>
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<tr>
<td>From Object to Things</td>
<td>23:03</td>
<td>Bruno Latour</td>
<td>Art, Technology, &amp; ...</td>
<td>Free</td>
<td>GET</td>
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<tr>
<td>Irene Pijoan’s ‘Kick Count Chart’</td>
<td>46:41</td>
<td>Lucinda Barnes &amp; L...</td>
<td>BAM/PFA Conversa...</td>
<td>Free</td>
<td>GET</td>
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<tr>
<td>Metric Films and Poetry and Truth</td>
<td>1:22:40</td>
<td>Peter Kubelka</td>
<td>BAM/PFA Conversa...</td>
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<td>On Artist Li Jin</td>
<td>53:09</td>
<td>Lucinda Barnes &amp; M...</td>
<td>Art, Technology, &amp; ...</td>
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<td>Rubens: Svetlana Alpers</td>
<td>59:49</td>
<td>Svetlana Alpers</td>
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<td>Miranda July</td>
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</tbody>
</table>
iTunes-U UCB Campus Events
iTunes-U Duster Video
Do we trust iTunes to preserve these?
Blog Resources-Univ of Houston, Clear Lake

**Blogs in Education**

This page is designed to provide you some resources if you want to get started using blogs for yourself or with your students.

The use of blogs in instructional settings is limited only by your imagination.

Options for instructors using blogs:
- Content-related blog as professional practice
- Networking and personal knowledge sharing
- Instructional tips for students
- Course announcements and readings
- Annotated links
- Knowledge management

Options for students using blogs in your courses include:
- Reflective or writing journals
- Knowledge management
- Assignment submission and review
- Dialogue for groupwork
- E-portfolios
- Share course-related resources
Classroom Blogs (UH-CL)

Example Blogs

- mamamusings.net - and instructor's blog for sharing personal and professional commentary
- Applied Calculus - using a blog as course communication tool
- College Composition - a class blog with links to each student's blog
- Writing Class Blog - for students to communicate and share ideas with other students
- Weblogg-ed - a blog about educational blogging
- Gangstories - "language warning". This is the kind of emotion and writing we would hope to free students to express via this medium.
- Blogs at Harvard Law - blogs for faculty and students
- The Information Literacy Land of Confusion - a librarian's blog for sharing resources
- The Shifted Librarian
- Ned Batchelder - software engineering
- Jim Berkowitz's e-Journal - marketing
- Outside the Beltway - political science
- Neuroeconomics - economic theory
- Mildly Malevolent - history and politics
- Bloviator - public health and policy
- Research Blogs - an annotated list of weblogs of researchers and academics
- Professors Who Blog - a list of blogs with general topic area
- Blogwise - a list of blogs by category
- City Comforts - mostly about architecture
- Eatonweb Portal - another categorized list of blogs
Myspace for U of Fl course

University of Florida Astrobiology's Latest Blog Entry
Welcome

University of Florida Astrobiology's Blurb

About me:
University of Florida
Astrobiology MCB4934
Spring 2007 - 3 credits

Class Schedule:
Monday - 5th and 6th period 11:45 am - 1:40 pm
Wednesday - 6th period 12:50 - 1:40 pm

Class Location:
Microbiology Cell Science Building Computer Lab

Instructor:
Dr. Jamie Foster, Assistant Professor, Microbiology and Cell Science

Office Hours:
Monday 2:00 pm - 4:00 pm in Microbiology and

12/19/07
My UCDavis

Welcome to MyUCDavis

In this section
Login
Help
Tutorials
Integration
SmartSite.

MyUCDavis integrates several UC Davis Web applications and online services into one convenient and secure location. After you log in, the system will recognize you as a faculty, student, or staff member and present you with information, tools, and resources of special relevance to your job functions or academic pursuits.

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See the Login Help page.

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See online help or the Tutorials and Training page.

Integrating a service, feature or application
See the MyUCDavis Integration Document or contact my@ucdavis.edu.

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- Search Course Webpages

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- Faculty
- Staff

SmartSite
Available Now
Click here to learn more

Besser-Educause Live Webcast
12/19/07
broadly. Student-written documentation from my courses for the UC Davis WebChat utility is now being distributed over the Web, folded into a section of the Computer Classroom Instructor's Guide I published, and has even contributed to changes in the student modem bank, the AggieTraks job-information service, and the MyUCDavis interface.
Pervasive Cellphones
On Facebook, Scholars Link Up With Data

By STEPHANIE ROSENBAUM

Each day about 1,700 juniors at an East Coast college log on to Facebook.com to accumulate “friends,” compare movie preferences, share videos and exchange cybercocktails and kisses. Unwittingly, these students have become the subjects of academic research.

To study how personal tastes, habits and values affect the formation of social relationships (and how social relationships affect tastes, habits and values), a team of researchers from Harvard and the University of California, Los Angeles, are monitoring the Facebook profiles of an entire class of students at one college, which they declined to name because it could compromise the integrity of their research.

“One of the holy grails of social science is the degree to which taste determines friendship, or to which friendship determines taste,” said Jason Kaufman, an associate professor of sociology at Harvard and a member of the research team. “Do birds of a feather flock together, or do you become more like your friends?”

In other words, Facebook — where users rate one another as “hot or not,” play games like “Pirates vs. Ninjas” and throw virtual sheep at one another — is helping scholars explore fundamental social science questions.

“We’re on the cusp of a new way of doing social science,” said Nicholas Christakis, a Harvard sociology professor who is also part of the research. “Our predecessors could only dream of the kind of data we now have.”

Facebook’s network of 58 million active users and its status as the sixth-most-trafficked Web site in the United States have made it an irresistible subject for many types of academic research.

Scholars at Carnegie Mellon used the site to look at privacy issues. Researchers at the University of Colorado analyzed how...
Facebook as Research Data

NYT 12/17/07

• “Our predecessors could only dream of the kind of data we now have”
  -Nicholas Christakis, Harvard Sociology Professor
Who collects them (and how)?

• Who is collecting representations of changes in how we teach?
• Who is collecting documentation of what life is like on our campuses?
• Is anyone being comprehensive in their collecting?
New approaches to dealing with the problem-

- Research
- Education
- New Paradigms
NYU/Public Television Project

- $6 million project -- 50% from LC/NDIIPP
- Marry asset management to preservation
- Preserve a broad set of elements (including ancillary material)
- Life-cycle mgmt (add metadata as soon as a clip comes in)
- Establish a community of stakeholders, working together for preservation (stations, university, librarians, journalists, historians, producers, scholars, …)
- Build an OAIS Server
- Explore appropriate file formats, wrappers, METS extensions
- Develop sustainable business model
Education:

MIAP Projects (Paper Tiger)
Education: Digital Preservation class:

Assessing an old Website

Friday Noon Lecture Series
Impact of New Information Resources: Multimedia and Networks

Note to the UC Berkeley community: Most of these lectures have been captured on video and are here for information on where to get videotaped copies of the lectures.

List of Speakers:

Current Speaker Series (Fall 1994)

Chris Carlsson
The Shape of Truth to Come: New Media and Knowledge

Steve Cider
Community, Networks, Building Electronic Greenbelts

K. D. Davis
The Imaginary Subject and the Virtual Body in Corporate Videocommunication

Michael Ester
Issues in the Use of Electronic Images for the Arts and the Humanities

Lee Feigenbaum
The Commons of Information

Majorie Franklin
The Conceptual Space of Computers in Art Production: Thoughts on Digital and Interactive Art

Larry Friedlander
Multimedia as Theater and Theater as Multimedia

John Gage
Education:

Preserving Eyebeam’s ReBlog

(Pamela Smith project)
### Education:

## Audio Lab Preservation Plan

**Assessment**

### Table #1: Number/Percentage of Audio in Special Collections:

<table>
<thead>
<tr>
<th>Archive</th>
<th>Total audio in each archive</th>
<th>% of audio holdings in each archive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fales</td>
<td>2,825</td>
<td>8%</td>
</tr>
<tr>
<td>Tamiment/Wagner</td>
<td>17,620</td>
<td>50%</td>
</tr>
<tr>
<td>University Archives</td>
<td>4,234</td>
<td>12%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>24,679</strong></td>
<td><strong>69%</strong></td>
</tr>
</tbody>
</table>

### Table #2: Number/Percentage of Audio Formats per Archive in Special Collections:

<table>
<thead>
<tr>
<th>Archive</th>
<th>Wire</th>
<th>LPS</th>
<th>45s</th>
<th><em>&quot;</em>&quot;</th>
<th><em>&quot;1&quot;</em>&quot;</th>
<th>Cassette</th>
<th>Micro</th>
<th>Audio CD</th>
<th>DAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fales</td>
<td>—</td>
<td>199</td>
<td>496</td>
<td>89</td>
<td>2</td>
<td>1,508</td>
<td>69</td>
<td>334</td>
<td></td>
</tr>
<tr>
<td>Tamiment/Wagner</td>
<td>87</td>
<td>—</td>
<td>—</td>
<td>6,895</td>
<td>—</td>
<td>10,630</td>
<td>6</td>
<td>2</td>
<td>84</td>
</tr>
<tr>
<td>University Archives</td>
<td>—</td>
<td>13</td>
<td>—</td>
<td>3,610</td>
<td>—</td>
<td>610</td>
<td>—</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>87</td>
<td>212</td>
<td>50</td>
<td>11,001</td>
<td>89</td>
<td>12,748</td>
<td>75</td>
<td>340</td>
<td>86</td>
</tr>
<tr>
<td>Total % of format</td>
<td>&lt; 1%</td>
<td>1%</td>
<td>&lt; 1%</td>
<td>45%</td>
<td>&lt; 1%</td>
<td>52%</td>
<td>&lt; 1%</td>
<td>2%</td>
<td>&lt; 1%</td>
</tr>
</tbody>
</table>
Education:

Audio Lab Preservation Plan

Equipment

- **Equipment for production of .wav files and for working digital – digital:**
  - Mackie HDR 24/96 (for audio capture for .wav files)
  - Medea RAID (storage of .wav files)
  - Marantz 340 CD Recorder or equivalent (for making CDs)
  - Sample Rate Converter (converting between digital files)
  - Graham-Patten ADC-20 A-to-D audio converter (for out to speakers)
  - Apple dual processor G5 desktop workstation (running software for digital audio processing)
  - Apple 20” Cinema Monitor

- Racks will need to be purchased to house the audio equipment. One to two racks are recommended that will be placed 3 ft. from the wall.
Handling New Media class:

Photo CD

• **Compression:** Using the PhotoYCC encoding, a DCT based algorithm developed by Kodak, data is stored at up to six levels of resolution in Image Pac files. There are three kinds of compression used to reduce Photo CD images. First is the infamous lossy compression scheme called Gamma compression. Next the data is converted from RGB to PhotoYCC to allow for a lossy compression scheme called "chroma subsampling.” This is like JPEG compression, however the PCD file includes an error correction scheme to help reverse the losses. The data is compressed with a lossless scheme called Huffman Coding. This scheme searches for recurring patterns in the data and encodes them as smaller codes.

• **Kodak describes its overall resolution as “visually lossless.”** As stated on their website, “The Image Pac compression process uses quantizing to compress the residual data, and so there is some data lost that is not restored. It is very little, and not visually noticeable, but it is not accurate to say it is zero.” Each image is saved in five different resolutions on the Kodak-produced Master disc (78KB to 18MB) and in six different resolutions on the Pro disk (78KB to 72MB). The Pro disc handles such media as 35mm, 120 and 4x5 film and unmounted slides, and can hold 25-30 images, while the Master disc is good for 35mm roll or cut film and mounted slides, and can hold up to 100 images. Originally, only Kodak produced these discs on Photo CD Imaging Workstations (PIW’s).
Research/Professional Service:

Disaster Recovery-New Orleans

Besser-Educause Live Webcast
12/19/07
Capturing & Preserving Campus Performative Events

• UCLA Library at early stages of trying to systematize the collection of these, & struggling with issues of:
  – collecting
  – preservation
  – access
Electronic works require a new way of looking at Preservation

- Little worry about the “original”
- Formats and hardware frequently become obsolete
- We need to constantly re-format
- Long-term planning and “preservation administration” is absolutely essential
Managed Environment

• More than temperature & humidity control
• Periodic monitoring of the works
• Periodic monitoring of the technical environment for viewing the works (software, systems, hardware)
• Trusted repositories
So, with electronic works, the focus should be less on stable temperature
(Helsinki underground vaults)
And less on the construction of Vaults (Helsinki underground vaults)
But more on ongoing management of a work without worrying so much about physical embodiment.
Paradigms Shifts needed

<table>
<thead>
<tr>
<th></th>
<th>Old</th>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical preservation</td>
<td>atmospheric cntrl</td>
<td>ongoing mgmt</td>
</tr>
<tr>
<td>What to save?</td>
<td>artifact</td>
<td>idea + ancillary material &amp; documentation</td>
</tr>
<tr>
<td>Cataloging</td>
<td>Individual work in hand</td>
<td>FRBR</td>
</tr>
<tr>
<td>Later access</td>
<td>Artifact &amp; documentation</td>
<td>Restaging, ancillary material &amp; documentation</td>
</tr>
</tbody>
</table>
Challenges of Film, Video, and New Media Preservation

Howard Besser, NYU Moving Image Archiving & Preservation Program

- http://www.nyu.edu/tisch/preservation
- http://www.ptvdigitalarchive.org/
- http://www.iasa-web.org/tc04/