DO-IT Video Search: A Case Study in Accessible Multimedia

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About DO-IT

- "Disabilities, Opportunities, Internetworking, and Technology"
- Goal: To increase the participation of individuals with disabilities in challenging academic programs and careers.
- 15 years of funding from NSF, US Dept of Ed, and other sources
- DO-IT has produced approximately 40 videos

Two Huge Problems with Video

- Video is not accessible to people who can't hear it.

- Solution: Captions.

- Video is not searchable ("I know I saw someone talking about that on some video or other…").

- Solution: Captions.

More problems with Video

- Visual-only content is not accessible to people who can't see it.
- Solution: Audio description
- Video is not accessible to people with slow Internet connections
- Solution: Transcript
- Most web-based video players have little or no support for keyboard &/or screen reader users
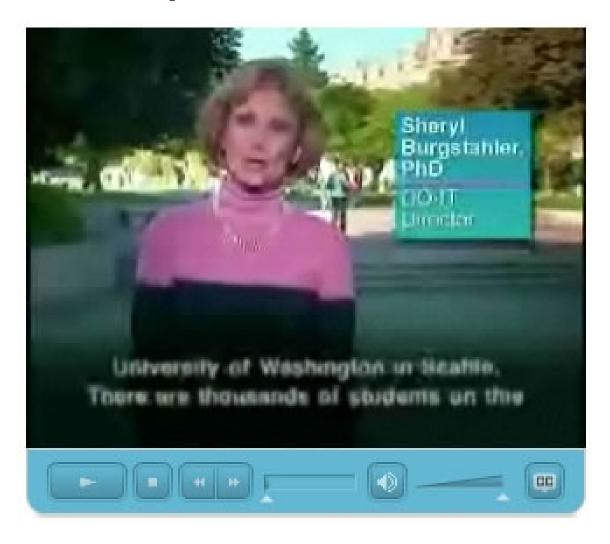
How DO-IT Does Video

- Videos are produced for broadcast TV (UWTV, Research Channel, etc.)
- All videos start with a script (simplifies captioning, reduces cost)
- Videos are captioned by a third party
- Early videos were only open captioned, and closed captions had to be reproduced:
    - Automatic Sync Technologies http://www.automaticsync.com
    - MAGPIE http://ncam.wgbh.org/webaccess/magpie

How DO-IT Does Video (part 2)

- Captions are **open** for distribution on VHS/DVD
  - Allows **author** control of font size, display, positioning
  - Ensures accessibility for all users, even those who don't know how to turn it on or don't know they need it
  - Serves as an example, helps to promote captioning
- Captions are **closed** for distribution on-line
  - Allows videos to be searched
  - Allows **user** control of font size, display, positioning
  - Is easy to add-on or correct post-production

Open Captions and Modems

How DO-IT Does Video (Part 3)

- Videos are audio described by a third party
  - Two versions of videos are available: with and without audio description
  - Currently testing "closed audio description" for simplicity of production and delivery (one video for all users)
- Videos are digitally encoded for on-line delivery (as FLV, Quicktime, and Windows)
- Caption files are automatically parsed and added to database for searching
- Videos and captions are uploaded to YouTube

Flavors of Closed Captions

- Quicktime – SMIL, with captions in qt.txt
- Real – SMIL, with captions in rt.txt
- Windows – SAMI
- YouTube - SubRip
- W3C Timed Text - Distribution Format Exchange Profile (DFXP)

Example SubRip File (for YouTube)

00:00:10.376
[Sheryl] Hi, I'm Sheryl Burgstahler, director of the DO-IT programs

00:00:14.116
at the University of Washington in Seattle.

00:00:17.036
There are thousands of students on this campus, and some of them have disabilities

00:00:21.376
that at one time would have blocked them from academic achievement.

00:00:25.176
Attitudes have changed, career

00:00:26.976
and school opportunities have changed, even the law has changed.

00:00:31.196
What hasn't changed is that all students need academic and career skills,
self-confidence,

Example W3C Timed Text file

```xml
<?xml version="1.0" encoding="UTF-8"?>
<tt xml:lang="en" xmlns="http://www.w3.org/2006/04/ttaf1"  xmlns:tts="http://ww
  <head>
   <styling>
    <style id="1" tts:textAlign="center" tts:color="#FFFFFF" tts:backgroundColor
   </styling>
  </head>
  <body>
   <div xml:lang="en" style="1">
    <p begin="00:00:10.37" dur="00:00:03.74">[Sheryl] Hi, I'm Sheryl Burgstahler
    <p begin="00:00:14.11" dur="00:00:02.92">at the University of Washington in
    <p begin="00:00:17.03" dur="00:00:04.34">There are thousands of students on
    <p begin="00:00:21.37" dur="00:00:03.80">that at one time would have blocked
    <p begin="00:00:25.17" dur="00:00:01.80">Attitudes have changed, career</p>
    <p begin="00:00:26.97" dur="00:00:04.22">and school opportunities have<br/>c
    <p begin="00:00:31.19" dur="00:00:05.98">What hasn't changed is that all stu
    <p begin="00:00:37.17" dur="00:00:02.69">self-advocacy skills, and determina
    <p begin="00:00:39.86" dur="00:00:04.52">[Sheryl] Since 1992, DO-IT<br/>has
    <p begin="00:00:44.38" dur="00:00:04.51">proven practices to help students w
    <p begin="00:00:48.89" dur="00:00:03.23">Now we'd like to share with you<br/
    <p begin="00:00:52.12" dur="00:00:07.75">We'll show you what we do and how w
    <p begin="00:01:14.07" dur="00:00:03.00">[Sheryl] Through our DO-IT Scholars
```

DO-IT Video Search

1. Extract captions into a database
2. Provide a user interface for searching the database
3. Provide a means of viewing videos clips, starting at the point in the video where search results are spoken.
4. Ensure that all of this is accessible.

DO-IT Video Search

Search the full text of DO-IT's video library:

It's cool | Search

Complete List of Videos

Sort by: Title (alphabetical) ▾ | Go

- Access to Technology in the Workplace: In Our Own Words (Nov 2003)

- Access to the Future: Preparing Students with Disabilities for Careers (Nov 1999)

- Building the Team: Faculty, Staff, and Students Working Together (Nov 2000)

- Camp: Beyond Summer (Mar 1997)

- College: You Can DO-IT! (Mar 1996)

- Computer Access: In Our Own Words (May 2002)

Now Playing

▶ ■ 00:00 ▭▭▭▭▭▭ 00:00 ⬛ T A ◀·||||||

DO-IT Video Search

Search the full text of DO-IT's video library:

It's cool

Search

Your Search Results

We found 10 captions matching your search terms. Select any caption text to play the video starting at that point. Select any video title to play that video starting from the beginning.

- "**So that's really cool.**"
  Spoken at 07:08 in Camp: Beyond Summer (1997)

- "**And...it's cool.**"
  Spoken at 00:34 in Invisible Disabilities and Postsecondary Education (2007)

- "**(Tiffany) I think it's really cool.**"
  Spoken at 07:03 in Camp: Beyond Summer (1997)

- "**(Tressa) That's really cool!**"

Now Playing

And... it's cool.

▶ ■ 00:34 ▭▭▭▭▭▭▭▭▭▭ ⛶ T A ◀···

Title: Invisible Disabilities and Postsecondary Education
Year: 2007
Runtime: 18:43 minutes

Choosing a Media Player

- An *embedded* player is essential for our application.
- Flash is preferred (highly customizable, installed on 99% of desktops)
- Must support closed captions.
- Must support start time parameter.
- Must have an accessible interface.

Comparing Flash Media Players

- JW FLV Player, NCAM ccPlayer, Adobe CS4 all support closed captions

- All players have screen-reader accessible player controls (though neglected in some versions of JW FLV Player)

- JW FLV Player supports external player control via HTML/Javascript
  - Can create accessible HTML buttons
  - Can provide user control over caption font size

- JW FLV Player supports closed audio description

Seeking WCAG 2.0 Conformace (Level A)

- SC 1.2.2 Some captions out of synch
- SC 2.1.1 All content operable by keyboard
- SC 2.1.2 No keyboard trap
- SC 2.4.2 Unique page titles
- SC 4.1.1 HTML Validation

Seeking WCAG 2.0 Conformace (Level AA)

- SC 1.4.3 – Color contrast (must be 5:1)

Seeking WCAG 2.0 Conformace (Level AAA, easy)

- 1.2.8 Full text alternative (include audio description in the transcript)
- 1.4.6 Color contrast (enhanced, must be 7:1 to meet Level AAA)
- 1.4.8 Visual presentation (spacing between lines and paragraphs)
- 3.1.4 Abbreviations

Seeking WCAG 2.0 Conformance (Level AAA, hard)

- 1.2.7 Extended audio description
- 1.2.6 Sign Language
- 1.4.7 Low or no background audio (20db threshhold)
- 3.1.5 Reading Level