

Cost Case Studies of Campus Web Accessibility

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And others who at this time are anonymous





Today's time

- Context for the cost case studies
 - Methods
 - Sample Results
 - Discussion
- 



GOALS

Gaining Online Accessibility to Learning through Self-study



Made possible by a grant from the Fund for the Improvement of Postsecondary Education (FIPSE),
US Department of Education. No official endorsement should be inferred.





GOALS

- **Ready resources**

- Recommended Practice Indicators for Institutional Accessibility
- Action Paper
- Benchmarking and Planning Tool
 - Self-study can be used during cycles of reaffirmation

- **Resources under development**

- Institutional Blueprints
 - Directed resources
 - Improved tool functionality
- Cost Case Studies
- Accreditation Blueprints
 - Aide transition for Regionals
 - Aide use by institutions during cycles of continuous quality improvement





Purpose for the Cost Case Studies

- ✓ Increase the knowledge base of effective methods to measure costs of web accessibility efforts
- ✓ Increase data related to the costs of web accessibility strategies that are actually being practiced at postsecondary institutions; and
- ✓ Provide information, cost methods and protocols that administrators and policymakers can use to make informed decisions that increase web accessibility in postsecondary education in an efficient way.





Importance of the Cost Case Studies

- ✓ There is a paucity of data regarding cost of web accessibility
- ✓ Very limited application of methods and protocols to do economic analysis of web accessibility
- ✓ Institutions report cost and funding as barriers to doing more
- ✓ Cost and funding information are key to moving forward





The case studies will **NOT** yield the cost of web accessibility

*They will describe costs associated
with different practices, on different
campuses*

Cost Case Studies: Methods

- Identify Institutions to participate: Variations in size, 2 and 4 year, regions of the U.S., stage of accessibility
- Identify key participants and dates for focus groups
- Focus group protocol: purpose and issues discussed
- Identify in-depth issue for case study
- Collect time and cost data
- Write and share case studies with participants
- Determine institutional anonymity



Characteristics of Institutions

- 12 institutions
 - 3 Represent Pacific or Southwestern U.S.
 - 3 South Atlantic
 - 1 South Central
 - 2 Pacific Northwest
 - 1 Rocky Mountain
 - 1 Mid-Atlantic
 - 1 Midwest



Institution Characteristics

- One 2 year; 11 4-year
- One Community college
- 3% to 8% undergraduate enrollment with disability
- Full time faculty: 350 to over 3,500
- Total Enrollment: 6,000 to over 41,000
- 8 institutions quite a way into system-wide web accessibility and 3 early in web accessibility efforts





Focus group participants

- An individual from central administration
- Faculty member: on-line, remedial education, etc.
- Library representative
- Staff member from finance.
- Information Technology staff
- A person involved in Section 504 compliance
- A person involved in ADA compliance
- An individual who works in faculty/staff IT training.
- An individual with a disability (e.g., faculty, staff, or student) who uses web content and needs that content to be accessible to them.
- Individual(s) from the Disability Resource Center (or equivalent).
- Web Developer(s), including at least one individual who works with accessibility





Focus Group Results: In-Depth Issues

- The content of the 12 case studies include detailed descriptions of practices and associated costs to:
 1. Engage in institution-wide web accessibility benchmarking and planning.
 2. Include web accessibility into the procurement review process.
 3. Perform institution-wide web accessibility reviews.
 4. Remediate online courses to make inaccessible content accessible.
 5. Use an automated tool to check for web accessibility.
 6. Transform one unit (Human Resources) with existing inaccessible content into one that is accessible.



Focus Group Results: In-Depth Issues (continued)

7. Train web developers. This is paired with the real outcomes of the training (e.g., was the content transformed or not?).
8. Deploy systems to caption both realtime and post-production video.
9. Implement a model where College Deans are invoiced for accommodations made to web content when native accessibility is expected.
10. Litigate a complaint through the courts to a final judgment.
11. Perform accessibility review and remediation of key websites that are shared across a system of multiple campuses.
12. Include accessibility programming within an open source LMS.

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So what did we find?

We are still finishing them . . .



Results

- There were wide variations in the amount of time and cost data provided after the focus groups
- Some provided a very limited snapshot of the staff and other institutional resources used for the in-depth issue
- Others provided very detailed information and applied a more rigorous method of data collection

Cost Case Study Results: Two Examples

- **Measuring Costs:**
 - Remediate online courses to make inaccessible content accessible.
- **Measuring Benefits:**
 - Litigate a complaint through the courts to a final judgment.

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Sample cost case study #1

**Cost to remediate existing distance
education classes so they are accessible
(to WCAG 2.0)**



Cost Case Study Results: Course Remediation

8 Steps in this study:

1. Agreement on list of ingredients to make a course accessible
 - Separate cost analysis for training

Cost Case Study Results: Course Remediation (contd.)

2. Determine 6 existing courses (2 simple, 2 moderately complex, 2 complex)

- Simple: no multimedia elements
- Moderately complex: video or audio, but no interactivity
- Complex: Interactivity

Cost Case Study Results: Course Remediation (contd.)

3. Four reviewers randomly assigned 3 courses each:

- Disability student director
- Online Development Facilitator
- Instructional Technology Specialist/Accessibility Advocate
- Accessibility Assistant

Cost Case Study Results: Course Remediation (contd.)

4. Each reviewer will review and assess ingredients of 3 courses

- Using the list of ingredients, inventory and assess the accessibility of the ingredients
- Fill out survey on the state of accessibility of each ingredient in that course
- Collate data on all courses

Cost Case Study Results: Course Remediation (contd.)

5. Who's responsible for the accessibility of each ingredient?

- Reviewers and others in Distance Learning and Disability Services met to list who is responsible next to each ingredient, who should be responsible based on skills or potential for training to make that ingredient accessible

Cost Case Study Results: Course Remediation (contd.)

6. How much time will it take?

- Reviewers and representatives of each responsible group met to resolve any disagreements about who should be responsible for what and to determine the time it would take for each individual to complete each task
- Faculty times were obtained by testing self proclaimed low-tech and high-tech online instructor. Each were shown how to make the element accessible and then asked to repeat the steps on a web page, word document and PowerPoint. The times reported are those that it would take the faculty member if they knew exactly what they were doing.

Cost Case Study Results: Course Remediation (contd.)

6. How much time will it take (contd)?

- Faculty are on a learning curve so this method is imperfect;
- in some cases the time used in the estimate was taken from the work of Norm Coombs' May 2009 California Community College System Needs Assessment of Distance Education (CA CC)
- CA CC times were used for web pages and word documents, forms, surveys and quizzes/tests outside of the LMS, Flashing Blinking content, Simple data tables and complex data tables
- The CA CC times were compared to those estimated and provided an additional perspective for interpretation of the faculty tests and identified which of our test times seemed realistic compared to their findings

Cost Case Study Results: Course Remediation (contd.)

7. Multiply the number of each ingredient in the course by the time to make the accessibility retrofit. Multiply total time of each person by their salary to estimate the cost for that person to make the retrofit.
8. Quantify the number of existing courses that will go through this process with variations for complex, moderately complex and simple.

Cost Case Study Results: Course Remediation (contd.)

- Arrive at total cost to make all existing on-line courses accessible based on number of courses by complexity, individual salaries and expertise to do the accessibility changes and the number and type of accessibility fixes that are needed for those existing courses.



Remember

This case represents the **cost to remediate** inaccessible distance education courses

NOT the **cost to create** them accessibly from the outset

Course Remediation (Step 7)

Moderately Complex Courses

Ingredient	Description of how it should be accessible	Responsible Party	Time and cost per ingredient	Total ingredients & cost for Course A	Total Ingredients & cost for Course B
Course Review	Review entire course for accessibility	Accessibility advocate for online courses	2-3 hours; \$50 to \$75 per review	\$50-\$75	\$50-\$75
Images and non-text elements	Providing information for images and non-text elements	Faculty member	1 min per image; \$1.07 per image	0	18 images=18 minutes=\$19.26
Web pages & word documents	Give structure to documents with headings and lists	Faculty member	10 min per page; \$10.70 per page	39 pages=6 hours and 30 min=\$416.26	52 pages=8 hours and 40 min=\$556.40



Course Remediation

Ingredient	Description of how it should be accessible	Responsible Party	Time and cost per ingredient	Total ingredients & cost for Course A	Total Ingredients & cost for Course B
PDFs	Made from electronic document	Faculty member	30 sec per page; \$0.54 per page	46 pages=23 minutes=\$24.84	0
	A complex scanned article	Alt Media Specialist	10 min/pg; \$4.16 per page	0	0
Link Text	Real words used for links, that describe the destination	Faculty	30 sec per link;\$ 0.54 per link	0	5 links=2.5 min=\$2.70



Course Remediation

Ingredient	Description of how it should be accessible	Responsible Party	Time and cost per ingredient	Total ingredients & cost for Course A	Total Ingredients & cost for Course B
Presentations (such as powerpoints)	Construct & share to allow users to access content and notes in logical, meaningful way	Faculty	4 min-6:30 min/page; \$4.28 to \$6.96 per page	0	5 links=2.5 min=\$2.70
Forms, Surveys, Quizzes/Tests outside of LMS and editable	Construct & deploy so users can complete and submit regardless of input method (LMS construction: no need for retrofitting quiz structure)	Faculty	2.5 hrs per form, survey, quiz or test; \$160.10	0	0

Course Remediation

Ingredient	Description of how it should be accessible	Responsible Party	Time and cost per ingredient	Total ingredients & cost for Course A	Total Ingredients & cost for Course B
Simple Data Tables	Tables should have headers, logical reading order & one or more: summary, alt text or caption	Faculty	1 min per simple table in a word document; \$1.07	0	0
		Faculty	15 min for a simple html table; \$16.05	0	2 tables-30 min=\$32.10
Complex data tables	Tables w 2 or more logical levels of row/column headers need to be marked up to associate data cells with header cells	Alt Media Tech	45 min/table; at \$11.82 per complex table	1 table=45 min=\$11.82	1 table=45 min=\$11.82

Course Remediation

Ingredient	Description of how it should be accessible	Responsible Party	Time and cost per ingredient	Total ingredients & cost for Course A	Total Ingredients & cost for Course B
Use of color	Need adequate color contrast in web pages & documents	Faculty	1 min per color instance; \$1.07 per instance of color	0	1 instance=1 min=\$1.07
Flashing/Blinking Content	Only use when needed and not for longer than 3 flashes/second	Alt Media Tech	45 min per instance; \$11.82/instance	0	0
Audio recordings	Audio recordings should be transcribed	Faculty	5 min; \$5.35 per min of audio	0	0

Course Remediation

Ingredient	Description of how it should be accessible	Responsible Party	Time and cost per ingredient	Total ingredients & cost for Course A	Total Ingredients & cost for Course B
Videos-produced by institution (including instructor made)	Should be captioned	Faculty	8 min per min of video; \$8.56 per min of video	828 min of video=110.4 hours of captioning-\$7070.08	344 min of video=46 hours of captioning=\$2945.84
Videos not produced by institution	Should be captioned	Outsourced for accommodations	\$132/hr or \$2.20/min	2 hours and 4 min of video-\$272.80	0

Course Remediation: Total Cost

C O U R S e	Revi ew Cost	Total Alt Media Tech Cost	Outsour ced video	Faculty Caption ing Time	Captioning Cost \$64.04/hr versus \$29.04/hr	Other Facult y Time	Total cost: Faculty salary at \$64.04/hr versus \$29.04/hr	Total Time
A	\$50- \$75	\$11.82	\$272.80	110 hours and 24 min	\$7070.08 \$ 3205.52	7 hours and 7 min	\$7871.17 to \$7896.17 \$3750.68 to \$3775.63	120 hours 26 min to 121 hrs 26 min
B	\$50- \$75	\$11.82	0	46 hours	\$2945.84 \$ 1335.84	9 hours and 23 min	\$3608.63 to \$3633.63 \$1670.06 to \$1695.06	58 hrs 8 min to 59 hrs 8 min

Cost Case Study Results: Course Remediation (contd.)

Total time and Cost for Course A

- \$50 to \$75 for review by Accessibility Advocate
- 45 min Alt Media Tech = \$11.82
- 110 hours and 24 min of faculty captioning = 7070.08 | 3205.52
- \$272.80 for outsourced video
- 7 hours and 17 min of faculty time = \$466.47 | \$210.54
- Cost of \$7871.17 to \$7896.17, 3 to 4 days for outsourced captioning, and 120 hours 26 minutes to 121 hours 26 minutes faculty & staff time

Cost Case Study Results: Course Remediation (contd.)

Total time and Cost for Course B

- \$50 to \$75 and 2 to 3 hours for review by Accessibility Advocate
- 45 min Alt Media Tech = \$11.82
- 46 hours of faculty captioning=\$2945.84 | \$1335.84
- 9 hours and 23 min Faculty time=\$600.97 | \$272.40
- Cost of \$3608.63 to \$3633.63 and time of 58 hours and 8 min to 59 hours and 8 min of faculty and staff time

Course Remediation: Total Cost On-line courses

- Estimate % and total number of courses that are: Example:
 - Simple 72% or 800
 - Moderately complex 27% or 300
 - Complex 1% or 10
- Multiply number of courses times cost to retrofit by complexity

Course Remediation: Simple Courses

- Each Simple course costs on average:
 - Time: 7.5 hours to 9.75 hours
 - Faculty hourly rate at \$29.04/hr: \$213.76 to \$244.26
 - Faculty hourly rate at \$64.04/hr: \$441.26 to \$480.91
- 800 simple courses cost:
 - At \$29.04/faculty hr: \$174,240 to \$226,512
 - At \$64.04/faculty hr: \$384,240 to \$499,512
 - Total time is between 6000 hours to 7800 hours to remediate all simple courses

Course Remediation: Moderately Complex Courses

- Each Moderately Complex course costs on average:
 - Time: 58 hours and 8 min to 121 hours and 26 min
 - Faculty hourly rate at \$29.04/hr: \$1670.06 to \$1695.06 and \$3750.68 to \$3775.68
 - Faculty hourly rate at \$64.04/hr: \$3608.63 to \$3633.63 and \$7871.17 and \$7896.17
- 300 Moderately Complex courses cost:
 - At \$29.04/faculty hr: \$505,296 to \$1,054,152
 - At \$64.04/faculty hr: \$1,114,296 to \$2,324,652
 - Total time is between 17,440 hours to 36,430 hours to remediate all moderately complex courses

Course Remediation: Complex Courses

- Each Complex course costs on average:
 - Time: 18 hours and 53 min to 55 hours and 15 min
 - Faculty hourly rate at \$29.04/hr: \$557.42 to \$1578.34
 - Faculty hourly rate at \$64.04/hr: \$1052.38 to \$3345.84
- 10 Complex courses cost:
 - At \$29.04/faculty hr: \$5,517.60 to \$16,132
 - At \$64.04/faculty hr: \$12,168 to \$35,382
 - Total time is between 188 hours and 552.5 hours to remediate all complex courses

Course Remediation: Total Cost On-line courses

- **Grand Total All On-Line Courses**
- **Time**
 - 23,628 hours (591 weeks or 11.3 faculty years) to 44,783 hours (1,120 weeks or 21.5 faculty years)
- **Cost**
 - At \$64.04/faculty hour: \$1,510,704 to \$2,859,546
 - At \$29.04/faculty hour: \$685,053 to \$1,296,796
 - Faculty paid at Flat Course Revision Rate of \$1300 per course: \$1,443,000

Discussion of Online Course Cost Findings

- Next step is to determine a reasonable funding rate for remediation of online courses
- Complex courses cost less because they were defined by interactive widgets/elements that cannot be retrofitted by institution
- Which variables should determine differences in reimbursement based on these findings
- How to define simple and complex from a cost perspective?
- Example, simple courses have no media or only commercial media and complex courses have instructor or institution produced media that require captioning

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Sample cost case study #2

**Litigate an accessibility complaint
through the courts**

Litigate a Complaint Through the Courts to a Final Judgment

- Student with a disability alleged that inaccessible web content prevented completion of coursework required for degree
- Advocacy organization brought suit on behalf of the student against the postsecondary institution
- Office of civil rights complaint filed before litigation
- One year of litigation and a settlement agreement followed





Litigation Costs

- Advocacy group reported costs of:
 - Total attorney & Paralegal fees \$389,000
 - Expenses for Co-counsel, travel mediator & expert: \$117,000
 - Total advocacy group expenses: \$506,000
 - Institution reimbursed advocacy group \$235,000
 - Net cost (unreimbursed) to advocacy group \$271,000

Litigation Costs (contd.)

- Postsecondary Institution Costs
 - Settlement of fees & expenses reimbursed to advocacy organization \$235,000
 - Damages paid to Plaintiff \$150,000
 - Cost for outside counsel fees & costs \$115,000
 - Total paid for lawsuit by Institution \$500,000



Litigation Costs

- Other Institution Costs to make coursework accessible
 - Hardware & software purchases \$20,000
 - Salaries \$10,356
 - Total \$30,356
 - Total Institution Costs \$530,356

Litigation Costs

- Unreimbursed expenses of advocacy organization \$271,000
- Total costs to post-secondary institution litigation & course remediation \$530,356
- **Total estimated out-of-pocket costs \$801,356**
- For the institution much of this expense was paid by risk management



Litigation Costs

- Simplified analysis omits many dollar and non-dollar costs of litigation
 - Student did not obtain a degree
 - Lifetime earnings and taxes paid reduced
 - Reduced student quality of life
 - Opportunity costs of staff at both organizations involved in litigation is likely underestimated when only including what was billed

Results of Litigation

- Institution reports great strides made in web accessibility since OCR complaint and litigation (costs of this work?)
- Hidden impacts on other persons with disabilities at other institutions that move proactively because of these legal cases

Scheduled interview with student will get their perspective about costs of not being able to access needed courses





Summary

- Avoiding a lawsuit would nearly cover costs to retrofit the existing on-line courses in our first example, without the bad PR.
- Litigation costs vary widely with region in country where expenses are incurred, length of negotiations, and whether or not it goes to trial
- What could \$800,000 do for an institution's accessibility work so no complaints occur?

Cost Findings

- There are many innovative practices at postsecondary institutions to improve web accessibility and incentivize efficiency in implementation of those practices
- These include issues of
 - Procurement
 - Use of automated tools for testing
 - Building private-public partnerships
 - Adopting practices across institutional systems (i.e., State systems) to create efficiencies and economies of scale
 - Adopting on-campus training practices for faculty and staff to increase and maintain the institution's capacity to create accessible web content

Summary & Conclusions

- One of the biggest challenges institutions face is how to incentivize faculty to make web content accessible in a climate that is decentralized and may face budget shortfalls
- One key staff member with a positive vision and strong leadership skills can alter an institution's path toward accessibility
- Institutions must work toward system-supported change





Interested in all case studies?

Stay tuned for the full GOALS Project cost report
(NCDAE.org or subscribe to our newsletter)

Booklet with 12 executive summaries and links to
fully developed case studies



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Discussion

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