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### **PolyLearn Support - ITS ADA Software Testing**

Our team was tasked with testing the PolyLearn Support Site for ADA compliance. Testing was conducted on the four following platforms:

- Desktop (Mac OS - Macbook Air - Google Chrome)
- Desktop (Windows - Dell Inspiron - Google Chrome)
- Mobile (Android - Samsung Galaxy Stardust - Google Chrome)
- Mobile (iOS - iPhone 5s - Safari)

Our team tested the following sites (seven on level 2 & seven on level 3) with the following severity levels and following Craig Schultz's instructions:

**Home page:** <http://polylearnsupport.calpoly.edu/>

**Faculty Support (1):** <http://polylearnsupport.calpoly.edu/Faculty/index.html>

File management: <http://polylearnsupport.calpoly.edu/Faculty/FacultyFileM.....>

My profile: <http://polylearnsupport.calpoly.edu/Faculty/FacultyMyProfile.html>

Edit Settings: <http://polylearnsupport.calpoly.edu/Faculty/FacultyEditSettings.html>

**Student Support (2):** <http://polylearnsupport.calpoly.edu/Students/index.html>

Assignments: <http://polylearnsupport.calpoly.edu/Students/StudentAssignment....>

Grades: <http://polylearnsupport.calpoly.edu/Students/StudentGrades.html>

My Profile: <http://polylearnsupport.calpoly.edu/Students/StudentMyProfile.html>

**How to Log In (3):** <http://polylearnsupport.calpoly.edu/About/Login.html>

**Tech Requirements (4):** <http://polylearnsupport.calpoly.edu/Support/TechReq.html>

**Consultation Request (5):** <http://polylearnsupport.calpoly.edu/Forms/Consultation....>

**New Shell Request (6):** <http://polylearnsupport.calpoly.edu/Forms/NewShellReque....>

**Issues & Fixes (7):** <http://polylearnsupport.calpoly.edu/Support/IssuesFixesEn....>

Enhancement Request Form link: <http://polylearnsupport.calpoly.edu/Form....>

Issue severity levels

- 1 = No action/changes needed
- 2 = Moderate action/changes needed
- 3 = Major action/changes needed

## Desktop (Mac OS) - Alex

The testing that was done on the Macbook consisted of completing the ATI survey for the Home, Faculty Support, File management, My profile, Edit Settings, Student Support, Assignments, Grades, and My Profile (student) webpages. All the of the sites **passed** all of the features in the ATI survey with the exception of a couple features. All of the sites tested, **failed** to meet the the Web Accessibility statement (WCAG 2.0 Level AA), none of the websites tested had a link to Cal Poly's Web accessibility statement <https://accessibility.calpoly.edu/website-accessibility-statement>. The other anomaly worth noting, is that for the keyboard trap feature, all the sites got a **partial pass**. When clicking on links to videos, or links to other webpages, a new window pops up, not able to return back to the previous content by hitting esc, however you can still tab to the URL space and navigate back to the site manually. See appendix for full survey results.

As far testing with the AXE browser plugin, I decided to test the Home page, Faculty Support page, and Student Support page. These were the results:

Home Page: 19 total issues found: Violations (0), Needs Review (15), Best Practices (4)

Faculty Support: 16 total Issues: Violations (2), Needs Review (12), Best Practices Found (2)

Student Support: 16 total Issues: Violations (2), Needs Review (12), Best Practices Found (2)

After evaluating the Axe readout, I noticed that the majority of the issues were minor to moderate. All of the issues from "Needs Review" ended up having to do with ensuring the contrast between foreground and background colors meets WCAG 2 AA contrast ratio thresholds and the element's background color could not be determined because it partially overlaps other elements. I verified that the following issues were not actually a problem, these were classified as severity level 1. Issues classified as severity level 2 were the "best practices", these issues regard syntax, although important, not a critical issue. Examples were "Page must have one main landmark" and "All Page content must be contained by landmarks". There was only one violation found that I classified as severity level 3. That violation was "Form input elements must have labels," which has to do with programmatically associating labels to all form controls and ensuring there are no duplicate labels. Being as Axe classified this violation as critical, I would recommend the following resolutions:

### To solve this violation, you need to:

Fix at least one (1) of these issues:

- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Form element does not have an implicit (wrapped) <label>
- Form element does not have an explicit <label>
- Element has no title attribute or the title attribute is empty

See appendix for full notes.

## Desktop (Windows) - Ryan

The testing completed on the desktop(Windows) consisted of completing the ATI survey for the How To Log-In, Tech Requirements, Consultation Request, New Shell Request, Issues & Fixes, and Enhancement Request Form webpages. The Enhancement Request Form is the only Level 3 of the samples. Overall, The PolyLearn Support sites are highly accessible with relatively few instances of high Instance Severity. The tests showed no issues with keyboard operability no keyboard traps. The tab order partially passed for every site in the title section between the Cal Poly logo and “PolyLearn Support” because the tab shifted upwards and then moves back down again. The keyboard operability worked extremely well inside of the empty forms located on the New Shell Request page and the Enhancement Request Form page. There is relatively little moving content and digital media on any of the tested sites of PolyLearn Support, so they all passed. When resizing text, all text seemed clear at 200% zoom except for the Cal Poly logo, which seems to blur because it is an image. The “linked text” section passed for all sites, except for the How To Log-In page. The How To Log-In page had several links that were posed as questions, but the links themselves were about separate topics that had little to do with the name of the link. For example, the link “[department assign you to the course as "instructor of record"?](#)” sends the user to the Policies page. I believe that this is slightly misleading and may confuse users. I recommend that the link sends users to the specific part of the Policies page that answers their question, not just going to the top of the Policies page. All titles, headers, tables and HTML passed for these sites. Using the ChromeLens Extension, the color contrast on the sites were tested and all passed. All of the sites tested failed to meet the the Web Accessibility statement (WCAG 2.0 Level AA), none of the websites tested had a link to Cal Poly’s Web accessibility statement <https://accessibility.calpoly.edu/website-accessibility-statement>. This is the only failed test result. I recommend that the WAS link is added to the bottom of all PolyLearn Support pages.

As far testing with the AXE browser plugin, I decided to test the How To Log-In page, the Enhancement Request Form page, and the Issues & Fixes page. These were the results:

How To Log-In: 14 total issues found: Violations (0), Needs Review (11), Best Practices (3)

Enhancement Request Form: 14 total issues found: Violations (1), Needs Review (19), Best Practices (3)

Issues & Fixes: 14 total issues found: Violations (0), Needs Review (19), Best Practices (3)

Similar to Alex, the Needs Review section of Axe for these websites consists of a color-contrast issue at level 1 severity. But I did not find an issue once the color was tested. The only violation occurred due to “Form element must have labels”. This is because the comment section of the empty form does not have a label in the code.

### **Mobile (Android) - Noah**

For the mobile testing of the Android operating system, three main accessibility features were tested: TalkBack, Magnification, and Inverted Colors. The first feature, TalkBack, is Android’s answer for visually impaired users; it reads aloud each line of text or image that is clicked, or in this case tapped, on by the user. While it is an important feature for many users, PolyLearn Support’s sites caused many issues. It was rather difficult to select specific links in the categories on the Home Page, as TalkBack’s

selection pane jumped from link to link without additional user touches. This made navigating pages time consuming and not all information on pages was able to be accessed. The Home Page received a rating of 2 due to this issue of navigation. Another problem arose when attempting to utilize the Table of Contents on many Faculty and Student Support pages such as Tutorials - File Management, Assignments, My Profile, and Tech Requirements -- all of which received ratings of 2. It was discovered that all Table of Contents on PolyLearn Support sites had a defect that when a topic in the table of contents was clicked on, the page would jump to the topic for a second, only to jump back to the table of contents. Perhaps the most pertinent issue comes from the Enhancement Request Form, which received a rating of 3; some fields were not "EditText" boxes but were "TextView" boxes. This meant TalkBack was not able to pull up the keyboard to enter the necessary information to complete the form.

Magnification and Inverted Colors both functioned well, receiving ratings of 1 for all sites, with the exception of how the site is formatted. PolyLearn Support sites are not optimized for mobile devices, making the initial views of the web pages extremely difficult to read. This forces the user to zoom in far, limiting the amount of the page that is visible. The issues that occurred with TalkBack (Table of Contents jumps, unclickable links, etc.) did not occur with Magnification or Inverted Colors.

### **Mobile (iOS) - Micah**

Within the IOS mobile testing for Polylearn Support, four accessibility features were tested. These four features were Voiceover, Zoom, Inverted Colors, and Gray Scale. Voiceover is the feature for iOS users that are blind or visibly impaired. Voiceover, as defined by Apple "is a gesture-based screen reader that lets you enjoy using iPhone even if you don't see the screen." With Voiceover active, the user only needs to touch a part of the screen that contains text or images to have the Voiceover read it back to the user. With this feature enabled, Polylearn Support site functioned well, with some minor recurring errors would be a quality of life change. An issue that did appear on every page that was tested was when links and bolded texts were interlaced in sentences and/or paragraphs. The Voiceover would treat the links or bolded texts as separate entities, dividing up the sentence or paragraph in multiple sections that the user had to click on to hear the complete sentence or paragraph. The other issue that occurred with the Voiceover, was that a couple images would not be selectable, therefore they were not able to be read back to the user. Aside from these issues, the Voiceover worked correctly. For the Zoom, Inverted colors, and Gray Scale functions, for all pages tested, they worked as expected without any complication. Though Polylearn Support was not designed with the intention of mobile devices in mind (as stated above in the Android Section), all the functions perform well.

## Test Notes

**Home page:** <http://polylearnsupport.calpoly.edu/>

19 total issues found: Violations (0), Needs Review (15), Best Practices (4)

All of the issues from “Needs Review” ended up having to do with ensuring the contrast between foreground and background colors meets WCAG 2 AA contrast ratio thresholds

- Verified that the following issues were not actually a problem:  
Element's background color could not be determined because it partially overlaps other elements

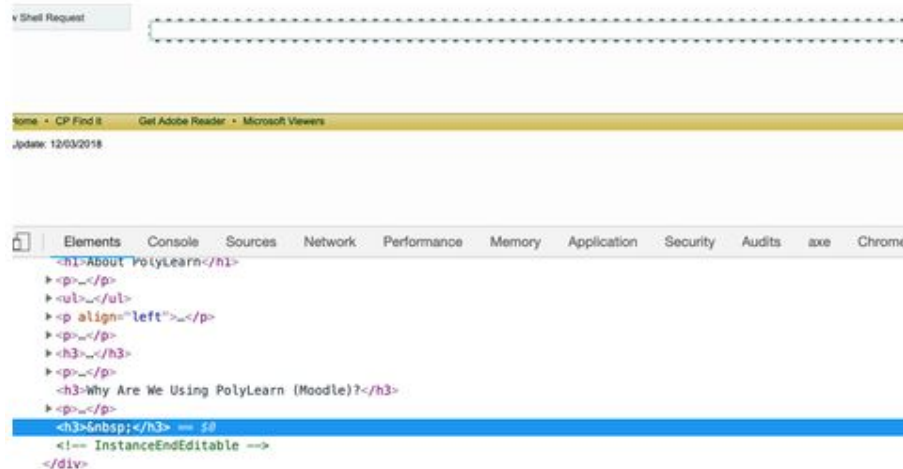
## Best Practices

### 1. Headings must not be empty – Severity Level 2 (Impact = minor)

Fix the following:

Element does not have text that is visible to screen readers

It is a best practice to ensure all heading elements (those marked with `<h1>` through `<h6>`) contain content. Furthermore, be sure that this content can be accessed by a screen reader; this means that the heading text must NOT be hidden



### 2. Heading levels should only increase by one – Severity Level 1 (Impact = minor)

Fix the following:

Heading order invalid

Ensure headings are in a logical order. For example, check that all headings are marked with `h1` through `h6` elements and that these are ordered hierarchically.

### 3. Page must have one main landmark – Severity Level 1 (impact = moderate)

Fix the following:  
Page does not have a main landmark

Ensure there is a navigation point to the primary content of the page. If the page contains iframe elements, each iframe should contain either no main landmarks or just one.

```
</header>
<nav role="navigation">
  <ul>
    <li>Put navigation here</li>
  </ul>
</nav>
```

#### 4. All Page content must be contained by landmarks – Severity Level 1 (impact = moderate)

To solve this violation, you need to:

Fix the following:  
Some page content is not contained by landmarks

Related nodes:

<> Inspect (1)

img[alt="Cal\ Poly"]

<> Inspect (2)

#headerimage

Ensure all content is contained within a landmark region, designated with HTML5 landmark elements and/or ARIA landmark region.

**Faculty Support (1):** <http://polylearnsupport.calpoly.edu/Faculty/index.html>

16 total Issues: Violations (2), Needs Review (12), Best Practices Found (2)

After evaluating the Axe readout, I noticed that the majority of the issues were minor to moderate.

All of the issues from “Needs Review” ended up having to do with ensuring the contrast between foreground and background colors meets WCAG 2 AA contrast ratio thresholds

- Verified that the following issues were not actually a problem:



Element's background color could not be determined because it partially overlaps other elements

For “Best Practices” the issues had to do with the web page not having a main landmark.  
**Severity level 2.**

There was only one major issue that I would classify as **severity level 3**, it was the only issue categorized by axe as Critical.

Form input elements must have labels;

```
<input type="text">  
<input type="password">  
<textarea>
```

**To solve this violation, you need to:**

Fix at least one (1) of these issues:

- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Form element does not have an implicit (wrapped) <label>
- Form element does not have an explicit <label>
- Element has no title attribute or the title attribute is empty

**Student Support (2):** <http://polylearnsupport.calpoly.edu/Students/index.html>

16 total Issues: Violations (2), Needs Review (12), Best Practices Found (2)

All of the issues from “Needs Review” ended up having to do with ensuring the contrast between foreground and background colors meets WCAG 2 AA contrast ratio thresholds

- Verified that the following issues were not actually a problem:  
Element's background color could not be determined because it partially overlaps other elements

**Best Practices**

1. Page must have one main landmark – Severity Level 1 (impact = moderate)

Fix the following:  
Page does not have a main landmark

Ensure there is a navigation point to the primary content of the page. If the page contains `iframe` elements, each `iframe` should contain either no main landmarks or just one.

```

</header>
<nav role="navigation">
  <ul>
    <li>Put navigation here</li>
  </ul>
</nav>

```

## 2. All Page content must be contained by landmarks – Severity Level 1 (impact = moderate)

To solve this violation, you need to:

Fix the following:

Some page content is not contained by landmarks

Related nodes:

[Inspect \(1\)](#)

`img[alt="Cal Poly"]`

[Inspect \(2\)](#)

`#headerimage`

Ensure all content is contained within a landmark region, designated with HTML5 landmark elements and/or ARIA landmark region.

### Violations

## 1. Form input elements must have labels – Severity Level 3 (impact = critical)

To solve this violation, you need to:

Fix at least one (1) of these issues:

- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Form element does not have an implicit (wrapped) <label>
- Form element does not have an explicit <label>
- Element has no title attribute or the title attribute is empty

Programmatically associate labels to all form controls and ensure there are no duplicate labels



2. `<ul>` and `<ol>` must only directly contain `<li>`, `<script>` or `<template>` elements – Severity Level 2 (impact = serious)

Ensure all ordered and unordered lists (defined by `ul` or `ol` elements) contain only `li` **content** elements.

To solve this violation, you need to:

Fix the following:

List element has direct children that are not allowed inside `<li>` elements

Related nodes:

`</>` [Inspect \(1\)](#)

`ul > br`

`</>` [Inspect \(2\)](#)

`form[method="POST"]`

Here is a list, using proper semantic markup:

```
<p> These are a few of my favorite things</p>
<ul>
  <li>Raindrops on roses</li>
  <li>Whiskers on kittens</li>
  <li>Bright copper kettles</li>
  <li>Warm woolen mittens</li>
  <li>Brown paper packages tied up with strings</li>
  <li>Cream colored ponies</li>
  <li>Crisp apple streudels</li>
  <li>Doorbells and sleigh bells</li>
  <li>Schnitzel with noodles</li>
  <li>Wild geese that fly with the moon on their wings</li>
  <li>Girls in white dresses with blue satin sashes</li>
  <li>Snowflakes that stay on my nose and eyelashes</li>
  <li>Silver white winters that melt into springs</li>
</ul>
```

## Faculty Support Survey

Keyboard – **Pass**

Keyboard Traps – **Pass** - None

Tab Order – **Pass** - Left to right, Top Down, Header to Footer

Moving Scrolling Content – **Pass** – Successful scroll

Resizing Screen / Zoom – **Pass** – Text resizes with zoom appropriately

Link Text – **Pass** - All links are properly described

Page Title – **Pass** - Page titles are accurate identifiers of the content ahead.

Headers – **Pass** - Headers are used, follow the hierarchical order (H1-H6)

Data Tables – **Partial Pass** - No data table used on all 4 webpages, so no incorrect markup.

Layout Tables – **Partial Pass** - No Tables, in these 4 webpages

Color Contrast – **Pass** - Tested all sites w/chrome lens to test all types of color blindness, and all content remained visible.

Web Accessibility Statement – **Fail** - No link to Cal Poly WAS

(<https://accessibility.calpoly.edu/website-accessibility-statement>)

Digital Media / Video – **Pass** - Only one video link on Faculty support main page and is fully accessible and captioned. All images are fully accessible.

## Student Support Survey

Keyboard – **Pass**

Keyboard Traps – **Partial Pass** - When clicking on links to videos, or links to other webpages on all four sites, a new window pops up, not able to return back to previous content by hitting esc, however you can still tab to the URL space and navigate back to the site manually.

Tab Order – **Pass** - Left to right, Top Down, Header to Footer

Moving Scrolling Content – **Pass** – Successful scroll, with mouse and keyboard

Resizing Screen / Zoom – **Pass** – Text resizes with zoom appropriately

Link Text – **Pass** - All links are properly described

Page Title – **Pass** - Page titles are accurate identifiers of the content ahead.

Headers – **Pass** - Headers are used, follow the hierarchical order (H1-H6)

Data Tables – **Partial Pass** - No data table used on all 4 webpages, so no incorrect markup.

Layout Tables – **Partial Pass** - No Tables, in these 4 webpages

Color Contrast – **Pass** - Tested all sites w/chrome lens to test all types of color blindness, and all content remained visible.

Web Accessibility Statement – **Fail** - No link to Cal Poly WAS

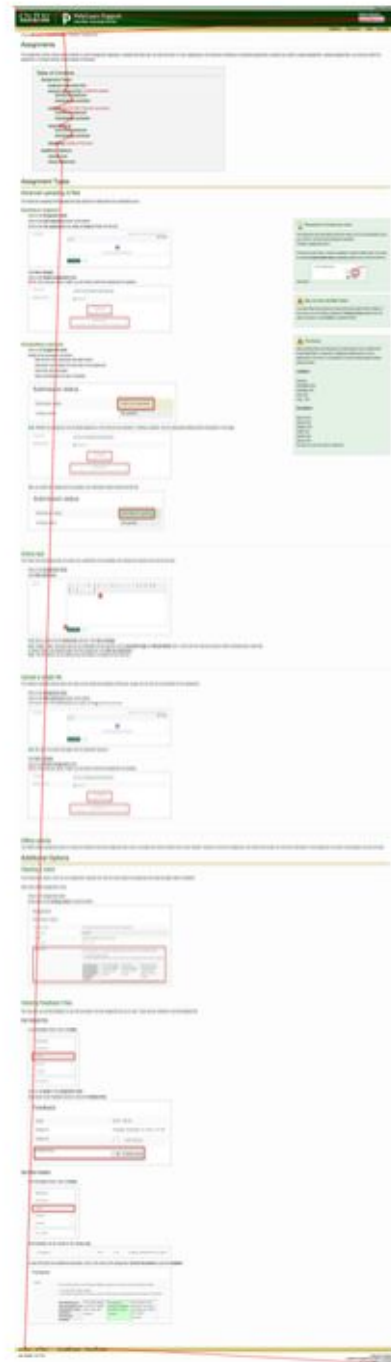
(<https://accessibility.calpoly.edu/website-accessibility-statement>)

Digital Media / Video – **Pass** - Only one video link on student support main page and is fully accessible and captioned. All images are fully accessible.

**Student Support (2):** <http://polylearnsupport.calpoly.edu/Students/index.html>



**Tutorials - Assignments:**  
<http://polylearnsupport.calpoly.edu/Students/StudentAssignments.html> →



**Tutorials - Grades:** <http://polylearnsupport.calpoly.edu/Students/StudentGrades.html>