Access-Oriented Web Design

Building highly-interactive web apps that work for everyone.

Scott Jehl, Designer / Developer
hello.
Access-Oriented Web Design

A Boston-based design firm specializing in complex web application design & development.

Official Sponsor and Design Team

jQuery

Access-Oriented Web Design
Assessing Access

from a holistic point of view
the common approach to accessibility is narrowly focused.
Today we target:
Today, most sites

What we miss
Worth supporting?
only if you care about...
Mobile internet devices
Gaming consoles & interactive TV
Operating system diversity

- Mac
- Windows 2000
- Windows 95
- Ubuntu
- Linux

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Browser diversity
Search engine spiders
Assistive Technology Devices

- Screen readers
- Window Eyes
- QWERTY Braille Display
- Low vision
- Color blindness
- Limited movement

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HTML is the language of the web

it works everywhere*

* Pretty much
Images, CSS, Javascript, Flash are all extras that will break (badly) somewhere.
THE NEW 2010 FORD FUSION: THE MOST FUEL EFFICIENT MID-SIZE SEDAN IN AMERICA

in Netscape 4.7

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in feedthebot.com

Text the spider sees:

NikeStore. Shop the Official Nike Store for Shoes, Clothing & Gear

Links: None
Cappucino Framework Demo
With JS disabled.
Cappucino Framework Demo

JavaScript disabled.
eek. (fixed in dev)
oops
we broke your internets.
All or Nothing
frankly, sucks.
one way
to approach the problem...
all well & good
if you have the resources support it...
but we don’t
...and neither does your client.
a more practical approach...
One page

many experiences
Slick here:

Still works here:
everyone
gets a usable, functional experience:
About You

Please fill out the following fields and we’ll update your profile.

PERSONAL DATA

Tell us a little bit about yourself.

Name

Birthday 04/09/2009

YOUR HOBBIES

Rate the following activities based on your preferences.

- Reading: No preference
- Writing: No preference
- Eating: No preference
some

get an even better one:
About You

Please fill out the following fields and we’ll update your profile.

**PERSONAL DATA**

Tell us a little bit about yourself.

Name

Birthday: 04/09/2009

**YOUR HOBBIES**

Rate the following activities based on your preferences.

Reading

Hate it | No preference | Love it

Writing

Hate it | No preference | Love it

Eating

Hate it | No preference | Love it

Drinking

Hate it | No preference | Love it
but how?
how about an...

Access-Oriented Approach
Simple, Functional Experience

Enhanced Experience

Test Capabilities
Simple and Functional

...and a little stylish too
breaking down

a design comp
About You

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Birthday
04/09/2009

YOUR HOBBIES
Rate the following activities based on your preferences.

Reading
Hat
Love it

Writing
Hate it
No preference
Love it

Eating
Hate it
No preference
Love it

Drinking
Hate it
No preference
Love it
Access-Oriented Web Design
About You

Please fill out the following fields and we’ll update your profile.

Personal Data

Tell us a little bit about yourself.

Name
Birthday 04/09/2009

Your Hobbies

Rate the following activities based on your preferences.

Reading
Writing
Eating
Drinking

Your favorite animal

What’s your favorite kind of animal?

- Dog
  Breed:
- Cat
  Breed:

Submit
About You

Please fill out the following fields and we’ll update your profile.

Personal Data

Tell us a little bit about yourself.

Name
Birthday 04/09/2009

Your Hobbies

Rate the following activities based on your preferences.

Reading: No preference
Writing: No preference
Eating: No preference
Drinking: Like it

Your favorite animal

What’s your favorite kind of animal?

- Dog
- Breed:
- Cat
- Breed:

Submit
About You

Please fill out the following fields and we’ll update your profile.

Personal Data

Tell us a little bit about yourself.

Name: ___________________________
Birthday: 04/09/2009

Your Hobbies

Rate the following activities based on your preferences.

Reading: No preference
Writing: No preference
Eating: Like it
Drinking: Like it

Your favorite animal

What’s your favorite kind of animal?

○ Dog
Breed: ___________________________
○ Cat
Breed: ___________________________

Submit
useful & usable
accessible
&
meaningful
This is your database
adding a little bit of <style>
(where it’s safe)
About You

Please fill out the following fields and we’ll update your profile.

**Personal Data**

Tell us a little bit about yourself.

Name: [Input field]

Birthday: 04/09/2009

**Your Hobbies**

Rate the following activities based on your preferences.

Reading: No preference
Writing: No preference
Eating: No preference
Drinking: Like it

**Your favorite animal**

What’s your favorite kind of animal?

- [ ] Dog
  - Breed: [Input field]
- [ ] Cat
  - Breed: [Input field]
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Capabilities Testing

The page is perfectly functional, let’s not break it!
like interpretive dance, enhancements aren’t for everyone
how do we know who should get enhancements?
not like this

navigator.userAgent

...or this

$_SERVER['HTTP_USER_AGENT']
more like this.

if( youCanRenderThisTestProperly ){
    >> bring on the enhancements!
}
tests you say?

what do we test?
JavaScript Support

- Basic DOM traversal and manipulation
- AJAX Support
- Canvas perhaps...?
CSS Rendering

- Box Model
- Positioning
- Floats
- Clears
- Overflow
- And more...
How we test CSS

Once the `<body>` is ready, our test script:

1. Inserts elements into the body
2. Manipulates their style
3. Checks if they rendered properly
customize the test
to suit your needs
What if it fails?
What if it passes?
What if it passes?

\[ <html class="enhanced"> \]

A class is added for CSS scoping
What if it passes?

Scripts and Styles are dynamically loaded
What if it passes?

Test results are cookied for future page loads
What if it shouldn’t have?
so, assuming the device passes...
Test-Driven Progressive Enhancement

by Scott Jehl

Progressive enhancement has become an established best-practice approach to standards-based development. By starting with clean, semantic HTML, and layering enhancements using JavaScript and CSS, we attempt to create a usable experience for everyone: less sophisticated devices and browsers get a simpler but completely functional experience, while more capable ones get the bells and whistles.

That’s the theory, at least. But in practice, test-driven enhancements are still delivered to most users—specifically older adults and under featured mobile users. Users of these devices initially see a perfectly functional page, but it’s progressively “enhanced” into a mess of scripts and styles gone awry, entirely defeating the purpose of the approach.
the upgrade...

Enhancing the Experience

with UI transformations, keyboard support, ARIA
scrape your HTML structure
to drive your enhancements
Charts from a `<table>`

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary</td>
<td>150</td>
<td>160</td>
<td>40</td>
<td>120</td>
<td>30</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Tom</td>
<td>3</td>
<td>40</td>
<td>30</td>
<td>45</td>
<td>35</td>
<td>49</td>
<td>70</td>
</tr>
<tr>
<td>Brad</td>
<td>10</td>
<td>00</td>
<td>10</td>
<td>85</td>
<td>25</td>
<td>79</td>
<td>70</td>
</tr>
<tr>
<td>Kate</td>
<td>40</td>
<td>80</td>
<td>90</td>
<td>25</td>
<td>15</td>
<td>119</td>
<td>200</td>
</tr>
</tbody>
</table>
Flyout and “iPod” menus from a `<ul>`
use them as a proxy to the original form control
Complex slider from a `<select>`
Toggles from an `<input type="checkbox">`
List Builder from a <textarea>

Who will be attending?

Patty Toland, Todd Parker, Maggie Wachs, Scott Jehl, another pers

Who will be attending?

Patty Toland × Todd Parker × Maggie Wachs × Scott Jehl × another pers
Ratings widget from `<input type=“radio” />`
slick.
Is it accessible?
does it work without this?
integrating keyboard access
tab
between components
arrow, space, enter, other
within components
tabindex
0 vs. -1 vs. N
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breaking web

conventions
Resources

http://dev.aol.com/dhtml_style_guide
it works with a keyboard
so it’s accessible, right?
does it make sense on this?

JAWS for Windows

Window Eyes
web widgets are beyond HTML’s vocab
integrating

ARIA support
landmarks
banner, main, navigation

roles
tree, slider, tabs

states
aria-expanded, aria-checked
Adding ARIA to the jQuery UI Slider
<div class="ui-slider">
    <a href="#" class="ui-slider-handle" style="left: 38%;"></a>
</div>
“number link” - Jaws
“Number link”

```html
<div class="ui-slider">
  <a href="#" class="ui-slider-link">
  </a>
</div>
```
### Adding ARIA

**slider (role)**

A user input where the user selects a value from within a given range.

A slider represents the current value and range of possible values via the size of the slider and position of the thumb. It is typically possible to add or subtract to the value by using directional keys such as arrow keys.

#### Characteristics of slider

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent Roles:</td>
<td>range</td>
</tr>
<tr>
<td>Required States and Properties:</td>
<td>ario-valuemax</td>
</tr>
<tr>
<td></td>
<td>ario-valuemin</td>
</tr>
<tr>
<td></td>
<td>ario-value</td>
</tr>
<tr>
<td>Inherited States and Properties:</td>
<td>ario-valuetext</td>
</tr>
<tr>
<td></td>
<td>Global States and Properties</td>
</tr>
<tr>
<td>Name From:</td>
<td>author</td>
</tr>
<tr>
<td>Accessible Name Required:</td>
<td>True</td>
</tr>
<tr>
<td>Children Presentational:</td>
<td>True</td>
</tr>
</tbody>
</table>
<div role="application" class="ui-slider">
    <a href="#" class="ui-slider-handle" style="left: 38%;" role="slider"
    aria-valuemin="0"
    aria-valuemax="100"
    aria-valuenow="38"
    aria-valuetext="38%">
    </a>
</div>
“slider control: 38 percent. Use arrows to move handle” - Jaws
integrating

Keyboard & ARIA

across an entire web application
the result...

Putting it All Together

Some working demos... if we have time?
the end...

Thanks Everyone!

for more examples, visit filamentgroup.com/lab