



How we made FutureLearn more accessible

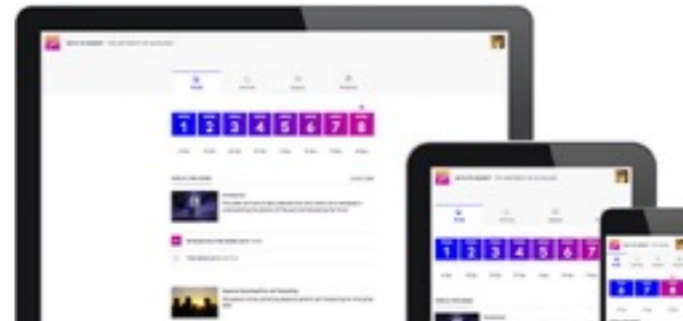
BY NICKY THOMPSON AT EMBER LONDON IN FEBRUARY 2015

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Signpost

- * Hello! I'm going to:
- * Introduce Futurelearn
- * Accessibility generally
- * Detail about specific problem

The best learning experiences, for everyone, anywhere.



- * **Who am I? What is Futurelearn?**
- * Online social learning platform. Free online education from partners.
- * Via our responsive website, desktop, tablet, phone
- * **What we mean when we talk about accessibility**
- * So the idea is not to just include these popular Apple devices - when we say everyone, we mean everyone

smorgasboard of assistive technology

- * Not just screen readers! or even screen MAGnifiers, or keyboard users.
- * the reality is that there's a lot of different kinds of people out there with different brains and eyes, that they use on different devices, in different ways
- * so what do we actually do?

Accessibility 101:

- WAI and W3C and lots of other good people make guidelines
- explain what are W3C WAI
- not just for sick disabled people, honestly for everyone

Accessibility 101:

- Keyboard navigable

* arthritis

* broke my arm (temporal disability!)

Accessibility 101:

- Keyboard navigable
- **Provide text alternatives**

- yes obviously screenreaders can't see images
- BUT not everyone learns best through pictures or video
- transcripts! subtitles!

Accessibility 101:

- Keyboard navigable
- Provide text alternatives
- Use more than just colour

- yes obv colour blind!
- low vision
- attention
- age related blues

Accessibility 101:

- Keyboard navigable
- Provide text alternatives
- Use more than just colour
- **Clear and simple language**

* everyone! also interaction and just good design

* if you needed a reason or a person who might need this on a website:

- * headache
- * stressed
- * sleep
- * a cold

Accessibility 101:

- Keyboard navigable
- Provide text alternatives
- Use more than just colour
- Clear and simple language
- **Obvious information hierarchy**

- * everyone also interaction and just good design
- * in a hurry
- * any of the above

Accessibility 101:

- Keyboard navigable
- Provide text alternatives
- Use more than just colour
- Clear and simple language
- Obvious information hierarchy

This is good for everyone because this kind of stuff happens to everyone (We all get old and we all have accidents. 1 in 3! months or years.

Beyond the basics


- * Easy bits! You already know...
- * You see crossover with accessibility and interaction guidelines - they are often similar or complement each other
- * Conversation with designers
- * Accessible = boring, uninteresting, or interactive - NOT TRUE!
- * "if I do all these things my site will be accessible, but it won't be very pretty" - NOT TRUE!
- * One of the other things we like to be at Futurelearn as well as accessible, is beautiful and engaging and enjoyable
- * Not mutually exclusive goals

Giving user feedback

Specific problem

- * Wanted to update the Like count in our comments section
- * Bearing the previous points in mind

2.6



Download video: [standard](#) or [HD](#)

Chicken shop scene (04:32)

You will notice some differences between the script that you read in the last step and the way in which the scene is visualised onscreen.

COMMENTS

Everyone | Following | **Most liked** | My comments

Nicky Thompson
Leave a comment... (plain text only, links will be auto-linked)

Post 0/1200

User 799654 Follow 02 FEB
The scene was a lot more subtle than I expected it to be when reading the dialogue. The nuances were a lot more discreet and low key (like the sucking of the chicken bones).
The body language and obvious discomfort Yemi showed were very telling. Visually, the set as being in an Indian cafe made a nice juxtaposition to Yemi being ashamed of his cultural identity, when the Cafe Worker was obviously very familiar with Nigerian culture and people and showed no hostility to either.
Yemi seemed to be the one out of place not as he is suggesting his brother.
Like 8

User 659515 Follow 02 FEB
I agree with you, Helen. The scene was way more subtle than I've expected. It's very clear that Yemi is the one out of place and that he's dealing with a lot of identity issues and that he can't accept his Nigerian origin.
Like 1

- * Course page! Learn, comment etc
- * Problem was to do with Like button

2.6



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[Like](#) 8



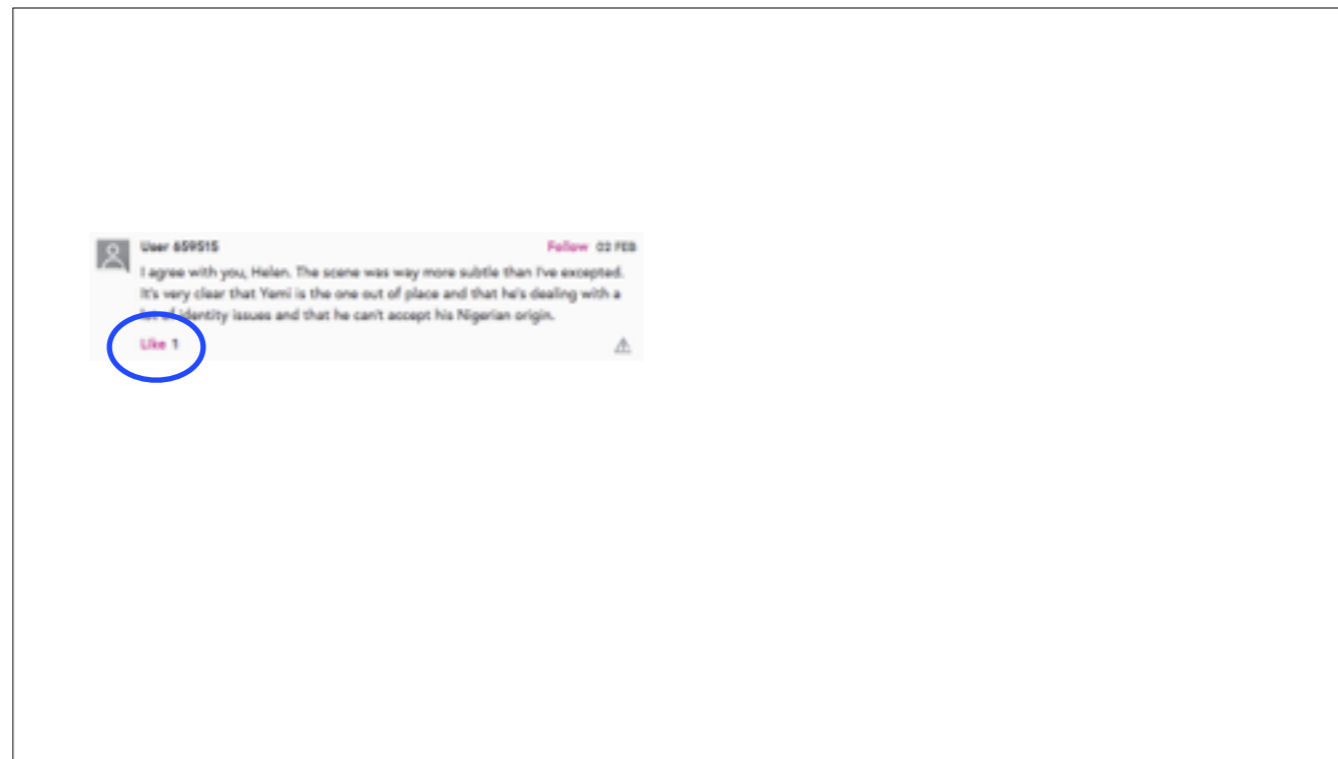
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[Like](#) 1





* And when we hit it



- * We can see that the colour has changed
- * Obv not enough! So we can see that the number of Likes has been updated on the page too.
- * Great, we've given the feedback to the learner that their Like worked. No.
- * As it stands not keyboard accessible and not screenreader accessible

click/enter/press



```
<div>  
  <form>  
    <input type="submit" value="Like">  
  </form>  
  <p>1</p>  
</div>
```



```
<div>  
  <form>  
    <input type="submit" value="Like">  
  </form>  
  <p>2</p>  
</div>
```

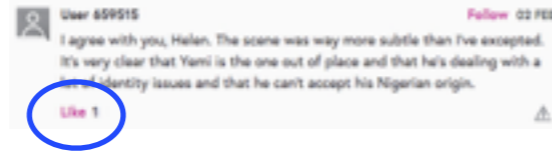
* markup, no difference except number



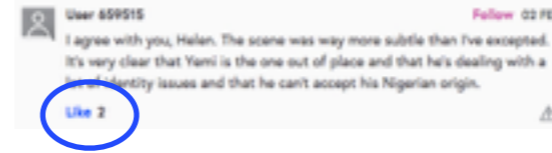
"Like 1"

- * So this is the same thing again except with a screenreader
- * What is a screenreader even?
- * App that reads text Windows, OS, mobile.
- * Do an audio
- * example - follow keyboard cursor and read things out
- * And you can see already there's a mismatch

click/enter/press



"Like 1"



" ... "

click/enter/press



```
<div>  
  <form>  
    <input type="submit" value="Like">  
  </form>  
  <p>1</p>  
</div>
```

```
<div>  
  <form>  
    <input type="submit" value="Like">  
  </form>  
  <p>2</p>  
</div>
```


- * the result of the ajax call is that whole div is replaced.
- * This actually causes us our first problem, that it is not keyboard accessible, as we'll see later

Giving user feedback

Specific solution

- * 1. We want to give people feedback
- * in a way that is as accessible as possible

2.6




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[Like](#) 8 

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[Like](#) 1 

Specific solution

- * The whole point of us is social learning
- * It feels good when people Like your comment a lot - you're validated! you said something interesting or **helpful**
- * the community has got to feel able to engage with each other, have a good time, and of course, **learn** from each other.
- * but we've got these problems that the feedback as it stands is not keyboard accessible & its not screenreader accessible
- * So how do we fix it

JavaScript, ARIA and CSS

CTA. How the audience will get from Point A to Point B.

- * I'm presuming you know what JavaScript is. And CSS.
- * Aria is Accessible Rich Internet Applications
- * ARIA is just some attributes that you can add to your markup to expose behaviour to browsers and AT but more on that later.



Focus

- * This is where the JavaScript comes in.
- * In this case we mean using Javascript to focus

```
$('#updatedElement').focus()
```

Move focus to that replaced element

- * Doesn't need jQuery
- * Super simple - Because we replaced that whole div that means we lose the focus
- * So the first thing to do is refocus where you want it.
- * In our case we focus back on the Like submit button itself because that was exactly where the keyboard focus was before we started interfering
- * This fixes the first problem for anyone trying to use just their keyboard

- * Yes! we could have fixed this by only updating that specific tiny number on the page and not replacing the whole element

What happens if you don't?

The screenshot shows a web browser window displaying a course page. The main content area features a large teal geometric pattern of overlapping squares and diamonds. Below the pattern, the title "Where do rules come from?" is displayed in a large, bold, black font. Underneath the title, there is a subtitle: "If rule-based art is concerned with creating rules that generate a work, how do you devise rules that make interesting art?". At the bottom of the main content area, a small line of text reads: "This is an interesting question, perhaps it is the question for this course".

To the right of the main content is a "COMMENTS" section. It includes a filter menu with "Everyone", "Following", "Most liked", and "My comments". Below the filter is a comment form with a text input field and a "Post" button. The comments section contains three visible comments:

- User 64498** (18 JUN): "I made a LOT of changes to 3_03 and really liked my results, but I couldn't get it to run in OpenProcessing, so I tweaked my 3_03 code and am pretty happy with the results so far. Mouse rollover changes the color. Mousedown lets you restart your sketch." Includes a link to <http://www.openprocessing.org/sketch/101993> and a "Like" button.
- User 344410** (21 JUN): "It's a kind of digital lava lamp!" Includes a "Like" button.
- User 341340** (25 JUN): "Hi, Jansen. When I tried to run your sketch in Processing, I found two mistakes in the code: they are in for loops, one in setup() function and one in draw() function. You have in them:


```
for (int i=0; i<numx; i++) {
  x[i] = width/2;
  y[i] = numHeight * i; // and so on
}
```

 These together can't work, because arrays x and y have num elements, so they are numbered as follows: x[0], x[1], x[2], ..., x[num-1] and similarly for elements of array y. In the

- * POINT AT LIKE FIRST! Nobody can tell what to pay attention to otherwise.
- * Explain different course
- * Explain this is keyboard navigation only, no mouse
- * Just narrate

Don't lose focus()

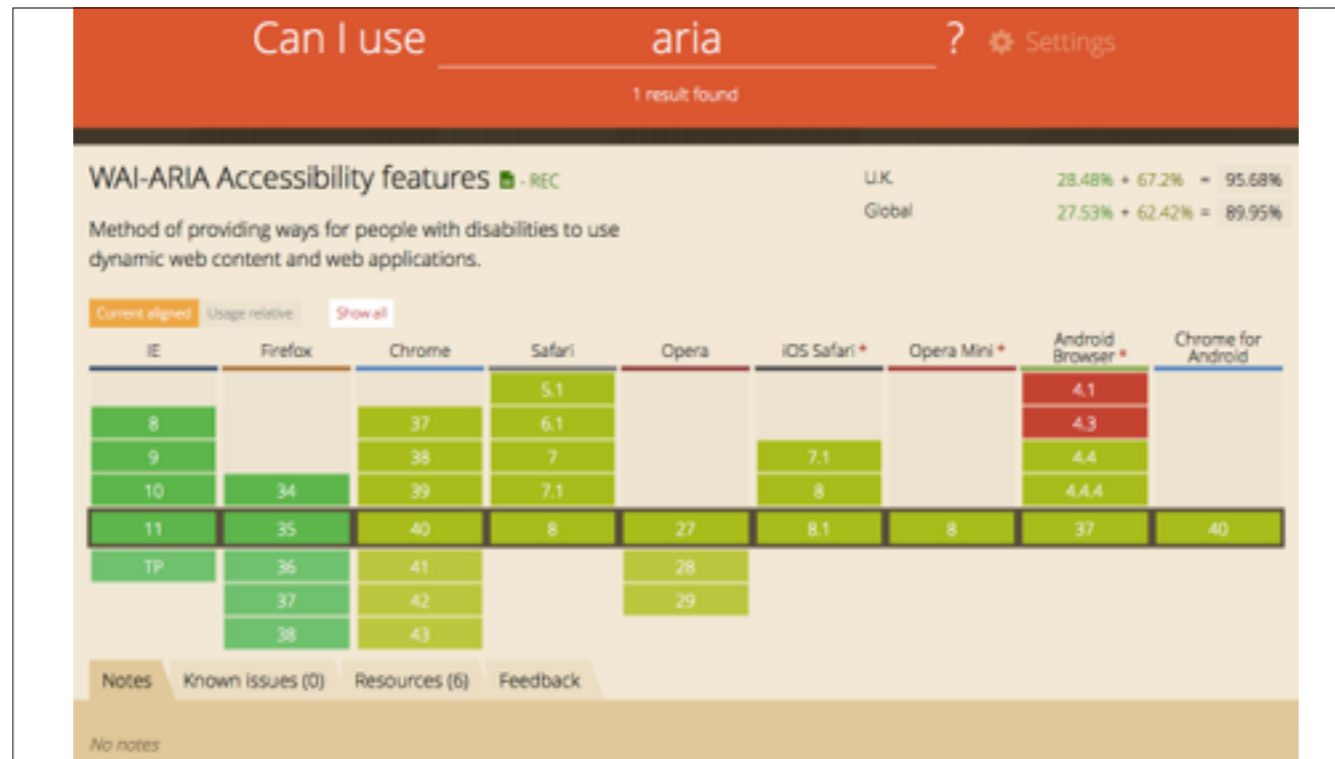
A good example

Keep focus in the right place on replaced elements

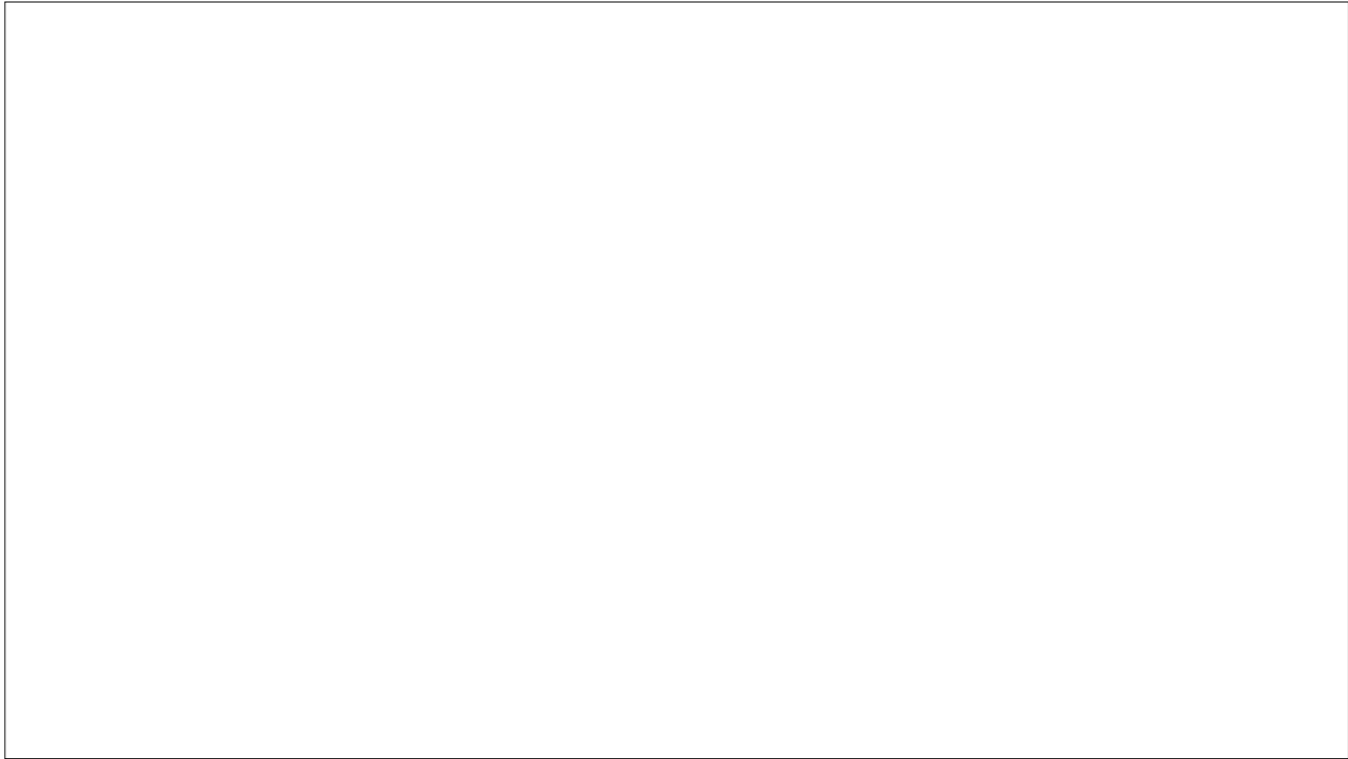
- * NOT A HACK! right tool for right job
- * good for for with multiple screens like a checkout form
- * but you need to set the focus each time so that using the keyboard has a nice flow



- * Hungry kitty
- * Accessible Rich Internet Applications
- * special attributes that signify some behaviour
- * don't need to install anything on the server or browser to use them,
- * just add the attributes to the markup



- * Doesn't tell the whole story because not all of them are supported by all AT devices.
- * It's mostly ok to put them all in anyway for the types that do support them.
- * Like CSS rules, AT ignores anything it doesn't understand
- * so it's safe to add things.
- * Aria-live



* other ARIA roles and attributes exist!

*

**Because we want
changed or inserted
content to be read out**

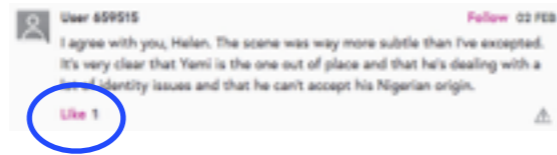
- aria-live will cause the text of its (new) contents to be read out whenever it changes.
- This is exactly what we want - we've just used AJAX to change something on the page
- now we have to give feedback to the user about whether it worked
- So the way I think of it is ...
- great for giving feedback to actions



Be polite

- * values: off, polite, assertive
- * We used “polite”.
- * Don't interrupt!
- * tabbing around reading a comment etc
- * Hilarious anecdote! Brilliant, let's be rude to users. I can see why they changed it.
- * So. Be polite.

click/enter/press



"1 Like"

- * Here's our page being read out by the screenreader
- * We hit enter

click/enter/press



"1 Like"



"2 Like"

```
<div aria-live="polite">  
  <p>2</p>  
  <form>  
    <input type="submit" value="Like">  
  </form>  
</div>
```

- * And then we hear the screenreader say the text. Not perfect!
- * source order switch
- * text is weird though
- * It's not a sentence. It doesn't make sense. There's no context.
- * So this brings us to the final part of the fix

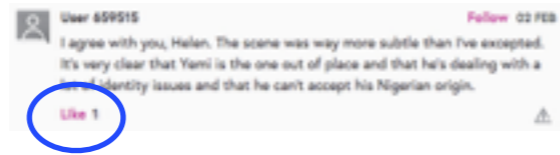
Hidden content



- * Basically, this means we are going to use CSS to hide some content from the screen
- * and show only some different content to screenreaders

Use CSS/ARIA to hide some text just for screenreaders

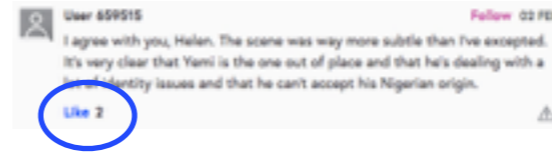
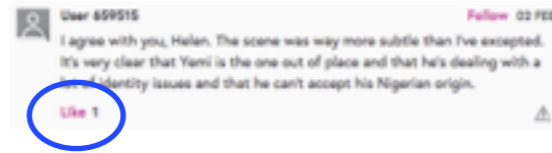
- * We ended up with a situation where we had some content visible on screen
- * and some content that was hidden visually, but would be read out by screenreaders.
- * Yes! This is not ideal!
- * Much better to be clear and simple for everyone



```
<div aria-live="polite">  
  <p class="is-visually-hidden">  
    1  
  </p>  
  <p aria-hidden="true">1</p>  
  <form>  
    <input type="submit" value="Like">  
  </form>  
</div>
```

- * visual = explain new aria-hidden attribute
- * is visually hidden content not on screen

click/enter/press

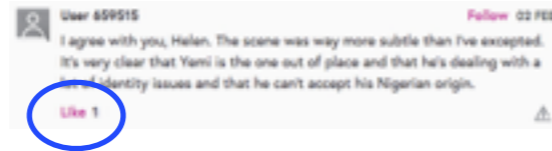


```
<div aria-live="polite">  
  <p class="is-visually-hidden">  
    1  
  </p>  
  <p aria-hidden="true">1</p>  
  <form>  
    <input type="submit" value="Like">  
  </form>  
</div>
```

```
<div aria-live="polite">  
  <p class="is-visually-hidden">  
    2 Likes. You like this.  
  </p>  
  <p aria-hidden="true">2</p>  
  <form>  
    <input type="submit" value="Like">  
  </form>  
</div>
```

* show extra content in visually hidden div

click/enter/press



"1 Like"



"2 Likes. You like this."

* A sentence!

JavaScript, ARIA, CSS

For everyone, anywhere.

- * So that's it
- * We reset the focus using JS to make Likes work for keyboard users
- * used ARIA-roles to make sure the feedback was announced or hidden depending on what we wanted
- * and some CSS to edit the content to make it read out properly

Questions?

@knotnicky
futurelearn.com/blog

More:

- <https://gdstechnology.blog.gov.uk/2014/08/14/improving-accessibility-on-gov-uk-search/>
- <https://speakerdeck.com/edds/accessibility-and-how-to-get-the-most-from-your-screenreader-front-end-north>
- <https://about.futurelearn.com/blog/accessible-like-button/>
- <https://the-pastry-box-project.net/anne-gibson/2014-july-31>
- [No Coffee vision simulator Chrome extension](#)
- [Sim Daltonism vision simulator app](#)

- * More details at these links
 - * More about screenreaders - Edd
 - * The Alphabet of of accessibility with examples at the beginning
- * a call to arms, the pint of water, screenreader driven development
- * my question: how could Ember help?

- * Screenreader usage? RNIB/NHS suggest 2m people sight loss. trends upwards in age
- * Business case? Legal requirements + “BETTER FOR EVERYONE”