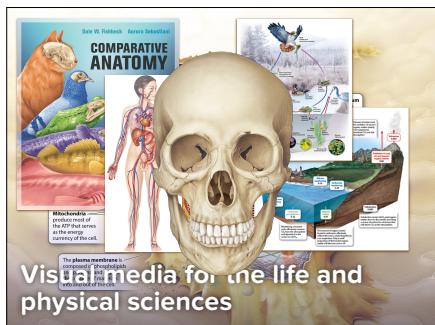
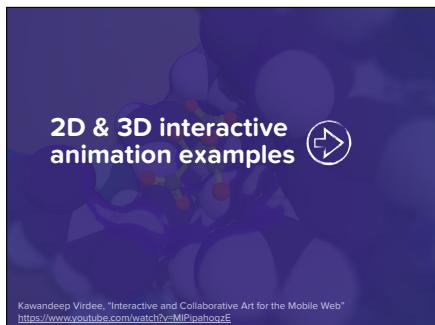




Today I'm going to be speaking about some of what I've experienced in the past two years creating digital content for the web at Imagineeringart. (Also its twitter handle)



Imagineeringart has, for the past 20 years, been creating visual media for the life and physical sciences, for educational publishers and museums. 2D static art has been is bread and butter for the majority of that time, but lately, along with educational publishers, we've been transitioning to digital media production.



There's been an increase opportunities to create content for the web using technologies such as HTML, CSS, JavaScript and WebGL. Here is an example of a 3D interactive animation and a 2D interactive animation.
*** (while letting foot lever animation play)
Let me belabour what that signifies for a moment.

In scientific illustration design, FOR PRINT you are worrying about

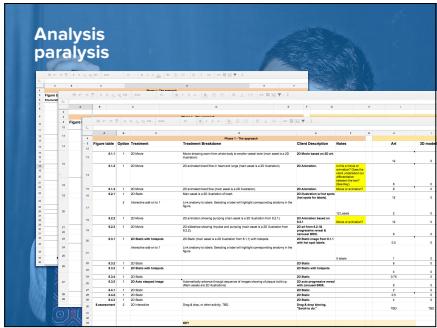


Today I wanted to touch on the four main lessons we've learned and are still learning about creating digital content for educational publishers. The lessons are analysis paralysis, accessibility, Editing, by which I mean Testing, and Learning Experience Design



The first lesson learned is dealing with the ‘analysis paralysis’. As I previously alluded, the scope of what you can design when you’re designing for the web is much broader (mind and hands), and the abundance of options can cause a project to stall.

At Imagineering we were recently awarded our first digital only project (not digital first, or digital accompanying material, but digital only). Which was



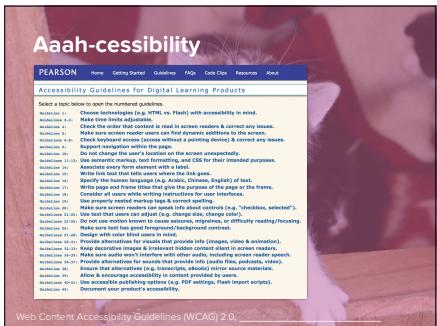
We spent them a version of this spreadsheet. And then of course on their end, they needed a lot more time to consider all these options as well (about 2 weeks).

And then we did this 2 more times until we met their budget requirements.

And this is what I mean by the risk of analysis paralysis: bc it’s the web

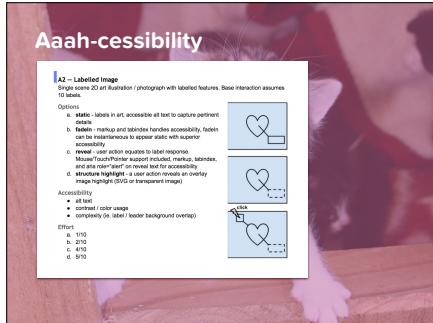


The second lesson concerns accessibility. American clients are bound by the ADA, the American’s with Disabilities Act, that guarantees that people with disabilities have the same opportunities as everyone else. 1 in 7 people actually have some sort of disability, which is a significant number of people that your limiting the reach of your content to if your site is inaccessible. Section 508 of ADA prescribes Web Content Accessible Guidelines (WCAG) 2.0. This is about 900 pages of technical speak, and so the common joke



Since there is room for interpretation of the WCAG guidelines however, education publishers such as Pearson helpfully provide a disambiguation checklist for developers to follow.

In Ontario we must also adhere to the AODA (Accessibility for Ontarians with Disabilities Act), which also refers to the WCAG 2.0

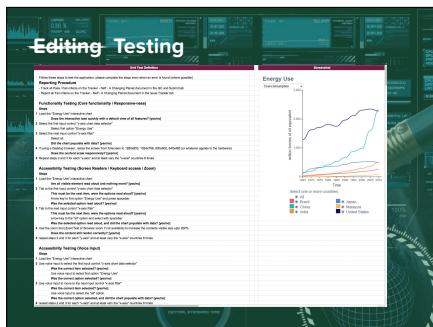


There are quite a number of guidelines, too many to go over, however those that are relevant to biomedical communicators are those related to Perceivability, and generally trying to ensure that there are multiple redundant ways the visual and interactive media can be perceived, such as providing an alternative text description to an image.

To streamline the process of determining what accessibility guidelines apply



The third lesson concerns the editorial process. All 2D static art at Imagineering undergoes an editorial review. We have a dedicated editor that ensures art matches publishers specifications (including colours, font, spacing, art style). For interactive art our editorial process has had to change, testing is our editorial pass.

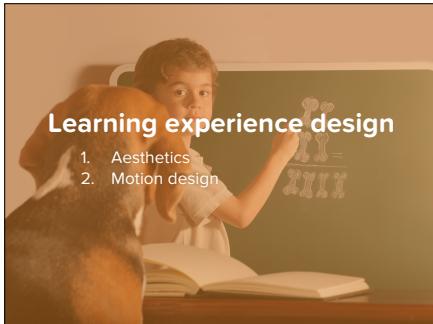


Testing is not something I do personally, or know too much about, but I do know that it can be time consuming, depending on client requirements. Here is an example of a unit test for a single interactive plot. Testing involves ensuring functionality, accessibility, as well as cross-browser and cross-device compatibility.

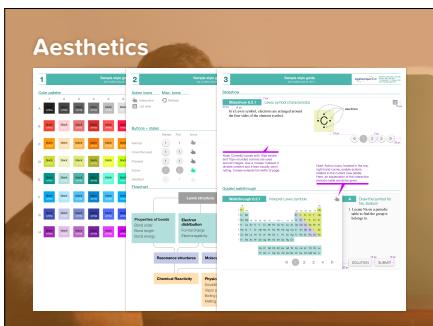
And because sometimes testing it can be as much as half the effort of



The final lesson, concerns “learning experience design”. To put this in context, a field that, in the past couple years, has been recognized as almost indispensable to web design is “user experience design”. User experience or UX design can be defined as designing based on research into the user’s psychology and behaviour. It is not limited in application to web site design, but usually means that.



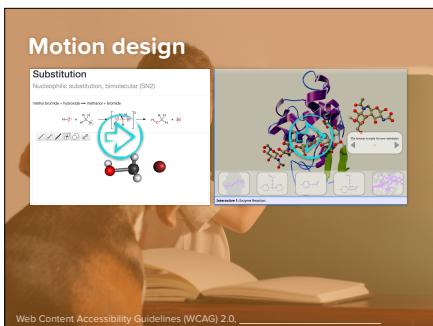
Two aspects of learning experience design I wanted to mention today are aesthetics and motion design.



Appearances are important to learning. In science I think sometimes tends not to prioritize aesthetics, and that's quite reasonable if you're a researcher, but when you're teaching and designing educational content it's important to prioritize aesthetics.

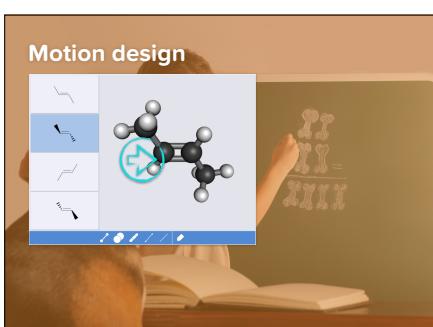
This is because

where two interfaces are functionally the same, the more attractive one will



The other Learning Design aspect I wanted to touch on is motion design.

Web animation became mainstream in 2014, thanks to Google's Material Design style guide, and someone somewhere declared 2015 the year of web animation. Web animations are important for user interfaces since it improves their usability, and they are also important for content.



In addition to content animations, there are animations that are part of the interface itself. There are different opinions on when and how UI micro animations, but, I would say they should be used to provide feedback on a user action.

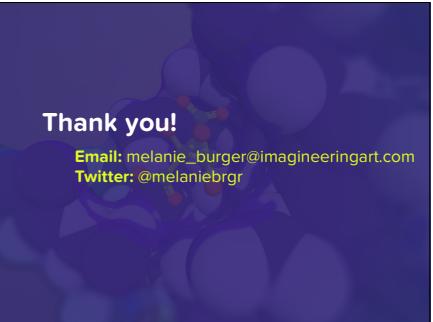
In this example as the user rotates the molecules we're providing feedback on 2D lewis structure representation the current orientation the 3D molecule



Further reading

1. Peters, "Interface design for learning"
2. Gonzalez, "Does Animation in User Interfaces Improve Decision Making?"
3. Anderson "Seductive interactive design"

There's a lot more to do and learn where it come learning experience design, and tight now the literature specifically for this subject is a bit sparse, but here are a few resources I've found useful so far. And I do expect to see an uptick in the field as more and more educational content moves only, and investment in eLearning continues grows.



Thank you!

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