



Australian
National
University

Web Publishers Group

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Responsive Web Design

Mobilising the Internet

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Responsive web design...

- Designing a website in a manner that helps the layout to change according to the user's screen resolution – regardless of the device
- The auto simplification of advanced multi-column layouts on wide screens to a minimum of one or two column layouts on narrow screens

Planning for the future...

We're now faced with a browser landscape that's become increasingly untethered from the desktop, with devices becoming smaller and larger simultaneously. Small-screen devices are estimated to become the dominant form of web access in a matter of years.

http://www.morganstanley.com/institutional/techresearch/mobile_internet_report122009.html

The future is now...

Mobile phones will overtake PCs as the most common Web access devices worldwide by 2013, according to a new forecast by research firm Gartner. That's an even more aggressive outlook than Morgan Stanley's projection that the mobile Web will outstrip the desktop Web in five years.

Mark Walsh, "Gartner: Mobile To Outpace Desktop Web By 2013"

<http://www.mediapost.com/publications/article/120590>

Smartphones overtake PCs 2011

- Total annual global shipments of smart phones exceeded those of client PCs (including pads) for the first time in 2011
- 158.5 million smartphones in Q4 2011
- 120.2 million PCs in Q4 2011
- 2012 ?
488 million smartphones
415 million PCs

<http://www.canalys.com/newsroom/smart-phones-overtake-client-pcs-2011>

Smartphones

- 13.2% of the world's 6.1 billion cellphones are smartphones. 30% in the Germany, UK and United States. Over 50% in Sweden and Finland
- 55% of Twitter's traffic comes from mobile devices
- 33% of Facebook updates come from mobile devices

Luke Wroblewski, "Data Monday: More on Mobile"
<http://lukew.com/ff/entry.asp?1450>

PayPal

- Payments via mobile:
 - 2009 \$141M
 - 2010 \$750M
 - **2011 \$4,000,000,000**

<http://venturebeat.com/2012/01/10/paypals-mobile-payments-4b-2011/>

Old ideas are new again...

Most sites on the web are not built with specific mobile use-cases in mind. However, millions of people access these sites every day through mobile devices. They access a “normal” (whatever that means) website through their “mobile” device... It seems like the Mobile Web allows us to revisit all of the talk of inclusion, progressive enhancement, and accessibility from years ago.

Stephen Hay, “There is no Mobile Web”

<http://www.the-haystack.com/2011/01/07/there-is-no-mobile-web/>

Design for adaptability...

The continued introduction and adoption of more and more mobile devices is what will make 2012 the year of the responsive web site. Web designers and developers will move to the use of fluid layouts instead fixed width, and media queries will find their way into many more stylesheets – allowing more sites to easily be viewed across multiple screens sizes and devices.

Jake Rocheleau, “Web Design Trends in 2012”

<http://webdesignledger.com/tips/web-design-trends-in-2012>

Design for context...

Since mobile devices are (just about) always with their owners, time and location play a big role in defining their context of use. And because mobile devices have the ability to talk, text, IM, and email people (plus an address book!), social rounds out the triumvirate of mobile context. When you design for mobile you are designing something that can be used anywhere, anytime, and be instantly shared/discussed with other people.

Luke Wroblewski, "When & Where Are People Using Mobile Devices?"

<http://www.lukew.com/ff/entry.asp?1263>

Change is inevitable...

We can quarantine the mobile experience on separate subdomains, spaces distinct and separate from “the non-iPhone website.” But what’s next? An iPad website? An N90 website? Can we really continue to commit to supporting each new user agent with its own bespoke experience?

Ethan Marcotte, “Responsive Web Design”
<http://www.alistapart.com/articles/responsive-web-design/>

Embrace individuality...

The control which designers know in the print medium, and often desire in the web medium, is simply a function of the limitation of the printed page. We should embrace the fact that the web doesn't have the same constraints, and design for this flexibility. But first, we must “accept the ebb and flow of things.”

John Allsopp, “A Dao of Web Design”

<http://www.alistapart.com/articles/dao/>

Throw off the yoke...

When a new medium borrows from an existing one, some of what it borrows makes sense, but much of the borrowing is thoughtless, “ritual”, and often constrains the new medium.

John Allsopp, “A Dao of Web Design”
<http://www.alistapart.com/articles/dao/>

Design responsively...

Web design is about asking the right questions. And really, that's what responsive web design is: a possible solution, a way to more fully design for the web's inherent flexibility... If we're willing to research the needs of our users, and apply those ingredients carefully, then responsive web design is a powerful approach indeed.

Ethan Marcotte, "Responsive Web Design"

<http://www.alistapart.com/articles/responsive-web-design/>

Responsive web design... (reprise)

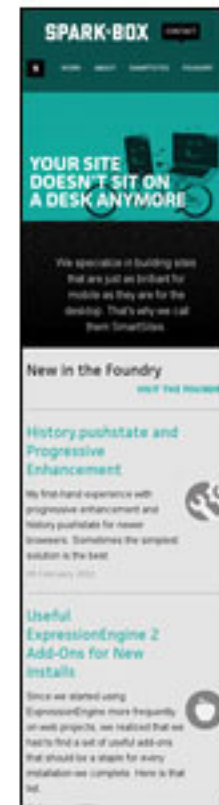
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~~50~~ Examples and Best Practices

<http://designmodo.com/responsive-design-examples/>

<http://seesparkbox.com/>



<http://earthhour.fr/>



WWF 60+ EARTH HOUR

Accueil Earth Hour ? Mobilisation Actualités Partenaires

EARTH HOUR

60 MINUTES POUR LA PLANÈTE
LE SAMEDI 26 MARS 2011
⌚ DE 20H30 À 21H30 ⌚

ÉTEIGNONS NOS LUMIÈRES
POUR Y VOIR PLUS CLAIR !

f PARTAGER ↻ RETWEET

MOBILISEZ-VOUS →

"Earth Hour est LA manifestation mondiale en faveur de la lutte contre le réchauffement climatique."
Serges Oliva - Directeur Général de WWF France

ACTUALITES

Le Groupe Pierre & Vacances s'engage pour le climat au-delà d'ES+
24 mars 2011

Il n'y a pas de petits gestes pour la planète...
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21 JOURS | 18 HEURES | 17 MINUTES
AVANT EARTH HOUR

Retrouvez toutes les programmes de la **climateweek**



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<http://www.bostonglobe.com/>

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79th Anniversary

The Boston Globe

NEWS | SPORTS | ARTS | BUSINESS | OPINION | LIFESTYLE | WELLNESS | REAL ESTATE | MY GLOBE

Bank of America hopes massive cuts will save billions

In spending plans to cut 30,000 jobs, which could save \$4 billion a year, CEO Brian Moynihan said "there's a much simpler way than we want to handle this."

- **Opinion:** A \$250 billion growth package

Obama urges Congress to act on jobs bill

Speaking from the Rose Garden, President Obama broadcasted a copy of the legislation and clearly challenged "the game, no politics, no delays."

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Mixed reviews for patent law overhaul

Proponents of a law reducing the 35-year system say it could spur a wave of innovation. Detractors claim it doesn't go far enough.

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Many faiths, one purpose

More than 200 people of various religious affiliations packed a hall of the Islamic Center of Boston yesterday to commemorate the 9/11 anniversary.

- **Photo:** 9/11 anniversary scene
- **Life goes on, reminders remain**
- **Prayer, tears, pain, and honor**

Most Popular

- 1. Frequently asked questions as Globe's new website is launched
- 2. Globe starts far-ranging paid website for all devices
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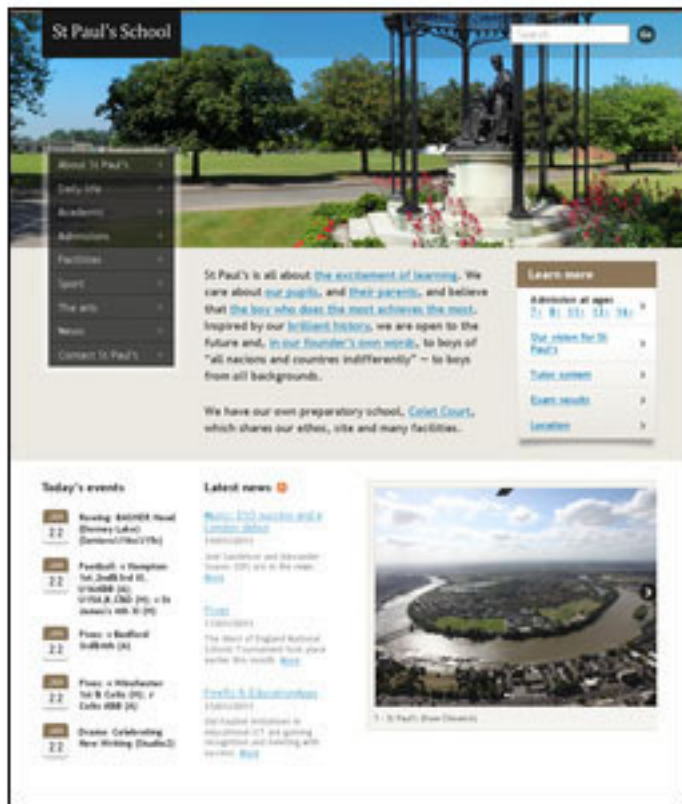
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<http://www.stpaulsschool.org.uk/>



St Paul's School

- About St Paul's
- Early life
- Academics
- Admissions
- Facilities
- Sport
- The arts
- News
- Contact St Paul's

St Paul's is all about the excitement of learning. We care about our pupils, and their parents, and believe that the boy who does the most achieves the most. Inspired by our brilliant history, we are open to the future and, in our founder's own words, to boys of "all nations and countries indifferently" – to boys from all backgrounds.

We have our own preparatory school, **Collet Court**, which shares our ethos, site and many facilities.

Learn more


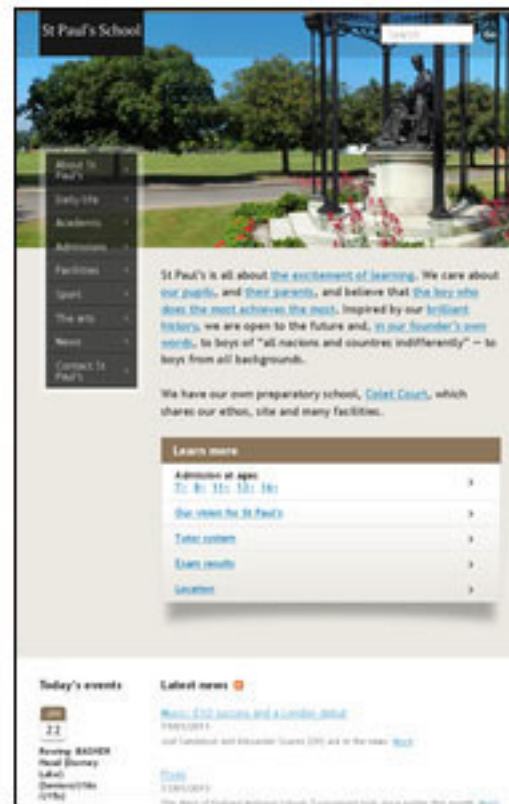
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- Our vision for St Paul's
- Take a tour
- Exam results
- Location

Today's events

- Rowing BASHEN Row (Senior) (Tue/Thu)
- Football v Hampton (U18) (Sat)
- Play v Bedford (U18) (Sat)
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- Cricket Celebrating New Writing (Studio)

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- More U12 success and a London debut
- Cricket
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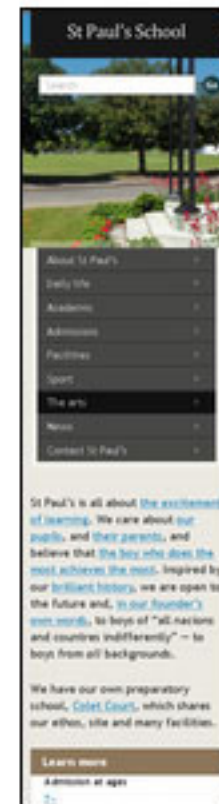
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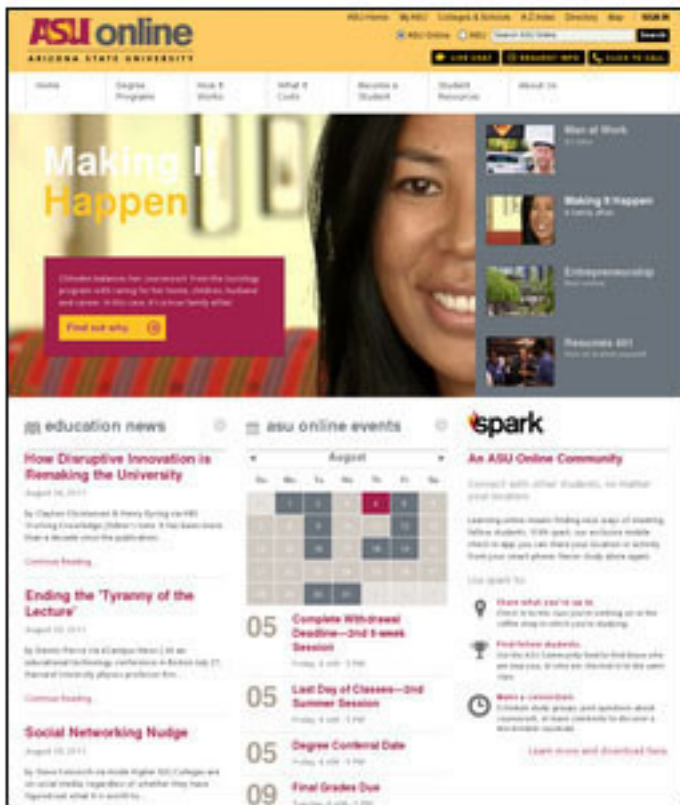
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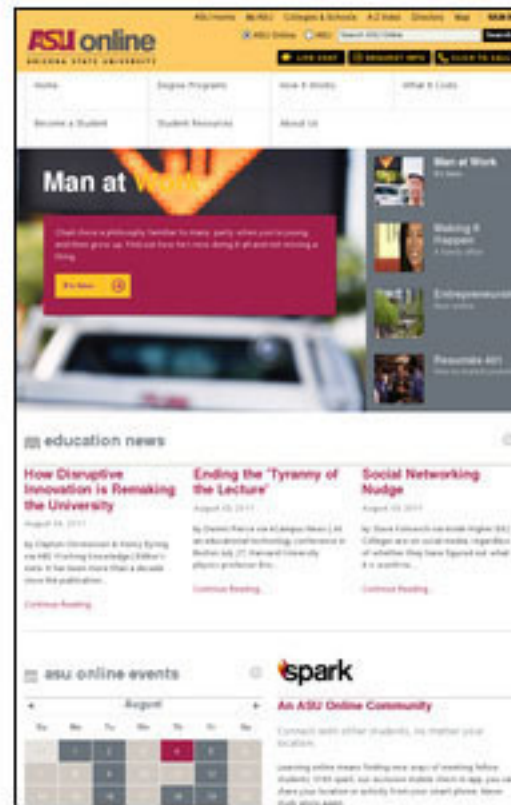
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<http://asuonline.asu.edu/>



The screenshot shows the ASU online homepage with a large banner for 'Making It Happen' featuring a woman's face. Below the banner are navigation tabs for Home, Degree Programs, How It Works, What It Costs, Records & Student, Student Resources, and About Us. A sidebar on the right contains links for 'Man at Work', 'Making It Happen', 'Entrepreneurship', and 'Resources 101'. The main content area includes 'education news' with articles like 'How Disruptive Innovation is Remaking the University', 'Ending the Tyranny of the Lecture', and 'Social Networking Nudge'. It also features 'asu online events' with a calendar for August and a 'spark' section for 'An ASU Online Community'.



This screenshot is similar to the first but features a different banner titled 'Man at Work' with a hand icon. The navigation and sidebar are consistent. The 'education news' section highlights three articles: 'How Disruptive Innovation is Remaking the University', 'Ending the Tyranny of the Lecture', and 'Social Networking Nudge'. The 'asu online events' calendar and 'spark' community section are also visible.



This screenshot shows the ASU online homepage with the 'Making It Happen' banner. The layout is consistent with the other screenshots, showing navigation, sidebar, news articles, and event calendar.

How does it work?

- A flexible grid
- Flexible images and media
- CSS3 media queries

Flexible grid

- A flexible grid-based layout is one of the cornerstones of responsive design.
- The term “grid” is used rather freely
- Stop using pixel-based layouts and start using percentages or the *em* for sizing
- By basing text sizes, widths and margins on percentages or on the *em* you can turn a fixed size into a relative size.
- You’ll need to do a little math to achieve a flexible grid and text size system. But the formula for calculating the *em* is very simple:

Flexible grid

(cont'd)

- Remember... ***target ÷ context = result***

Let's say the normal context for the body font size is 16 pixels. If the designer specifies that the H1 should be 24 pixels, you can calculate the following:

$$\text{(target) } 24 \div \text{(context) } 16 = 1.5$$

This results in the following CSS style:

```
h1 { font-size: 1.5em; }
```

Flexible images

- Adapt your images or other media to load differently depending on the device, either by scaling or by using the CSS overflow property
- You can set the media element's max-width to 100 percent, and the browser will make the image shrink and expand depending on its container

```
img, object { max-width: 100%; }
```
- applying `overflow:hidden` allows you to crop images dynamically

CSS3 media queries

- You can use media queries to scope styles to specific capabilities, applying different styles based on the capabilities that match your query
- You can even combine queries that test for several features by using semantic operators such as AND and NOT)
- Features include width, height, max-width, max-height, device-height, orientation, aspect-ratio, resolution and more
- There are three ways to implement media queries

CSS3 media queries (cont'd)

- 1. Use the `@import` rule to import styles from other style sheets:

```
@import url(style600min.css) screen and  
(min-width: 600px);
```

CSS3 media queries

(cont'd)

- 2. Put media queries directly in the style sheet:

```
#nav { float: right; }
#nav ul { list-style: none; }
@media screen and (min-width: 400px) and (orientation:
portrait){
    #nav li { float: right; margin: 0 0 0 .5em;
border:1px solid #000000; }
}
@media screen and (min-width: 800px) {
    #nav { width: 200px; }
    #nav li { float: left; margin: 0 0 0 .5em;
border: none; }
}
```

CSS3 media queries (cont'd)

- 3. Include a query in a linked style sheet's media attribute:

```
<link rel="stylesheet" type="text/css" media="screen and (max-device-width: 800px)" href="style800.css" />
```

- Because of the (cascading) nature of CSS, default styles are defined at the top with the media query matching rules and styles below. Styles defined at the top will be cascaded to the matching styles in the rule, or even completely overwritten.

Old and busted...

- Legacy browser support?
- Javascript solutions to replace media queries and to refine scaled images
- **STOP** holding back the future...

Those that cry, “it can’t be done!” should make way for those of us who are busy doing it.

Project Strategy

Discovery



Establish a focus group



Design



Development



Deployment

1. Project schedule
2. Requirements document
3. Communications strategy

What does all this mean?

- Responsive Web Design + HTML 5 + CSS 3
- Major changes – all behind the scenes
- Some existing styles will change
- Some new styles will be introduced
- Templates will work the same as now (*mostly*)
- Existing sites will essentially stay the same
- Opportunities for new home page layouts

Status quo...

- In the past we've looked at what other universities are doing on the web (ie Oxford, Stanford, Yale, Harvard) and then adopted the best ideas
- The *Web Transformation Project* has been preparing the university's web presence for a major jump in technology and design
- We can become a leader rather than a follower

Further reading...

- A Dao of Web Design (John Allsopp) <http://www.alistapart.com/articles/dao/>
- Responsive Web Design (Ethan Marcotte) <http://www.alistapart.com/articles/responsive-web-design/>
- Responsive Web Design <http://www.sitepoint.com/responsive-web-design/#fbid=nmftfiP3zMHv>
- There Is No Mobile Web (Jeremy Keith) <http://goo.gl/pFCX7>
- For a Future-Friendly Web <http://goo.gl/BGcHn>
- Structured Content First (Stephen Hay) <http://goo.gl/HI6RE>
- Pragmatic responsive design <http://goo.gl/d2daW>
- Responsive by default <http://goo.gl/liL35>
- A Richer Canvas <http://goo.gl/IWDxC>
- Responsive Advertising <http://goo.gl/MGhGo>
- You Say Responsive, I Say Adaptive <http://goo.gl/tA1zJ>
- A Responsive Design Approach for Complex, Multicolumn Data Tables <http://goo.gl/n8S1q>
- Responsive Data Table Roundup <http://goo.gl/3GVox>
- Debugging CSS Media Queries <http://goo.gl/5eawl>
- Convert a Menu to a Dropdown for Small Screens <http://goo.gl/KDE9t>
- Mobile Content: If in Doubt, Leave It Out <http://www.useit.com/alertbox/mobile-writing.html>

- The ultimate responsive web design roundup <http://www.webdesignerdepot.com/2011/09/the-ultimate-responsive-web-design-roundup/>

Questions ?

- Remember: Web design and development is an evolving and sometimes experiential process
- We're implementing these changes based on discoveries from continuous improvement reviews, suggestions from other web developers and the considered opinion of industry best practice
- email **webstyle@anu.edu.au**

What are you doing?

- Lots of fantastic and interesting stuff goes on in the web space on campus, but does anyone know about it?

Open Q&A

- Got a burning web related question?
- Ask away and see what you can find out
- No question is ever too stupid, but not asking the question is!

<applause>

Thanks for coming!

</applause>