




# **Responsive Web Design: Single Design for multiple devices - A case with UNISWA Library website**

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# Introduction

- ▶ Proliferation of different devices to access internet
    - ▶ Desktops
    - ▶ Tablets
    - ▶ Smart mobile phones
  - ▶ Growth of portable and handheld devices
  - ▶ Mobile acceptability the choice of younger generation
  - ▶ Challenges with the availability of limited desktop devices
  - ▶ Mobile based learning landscape in academic institutions
- 

# Library Home Page desktop vs Mobile

AMERICAN UNIVERSITY LIBRARY  
4400 Massachusetts Ave NW, Washington DC 20016-8046 (202) 885-3237

February 15, 2010

Database Trials MyALADIN Friends of AU Library Suggestion Box Virtual Tour Ask a Librarian Site Index

Library News

- New Library Exhibit
- Undergrad Research Prize
- Try the New Discovery Tools
- EagleBuck\$ Printing for Personal Computers
- EndNote Information

Library Hours (conditions may force early closure)

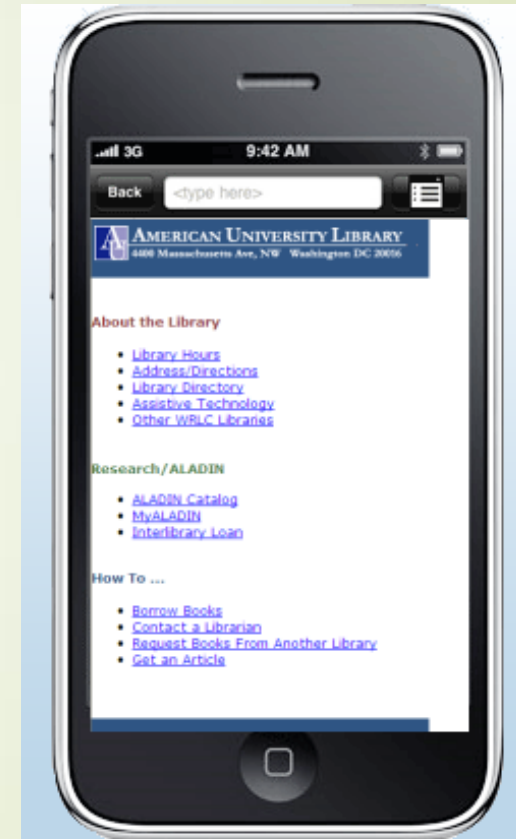
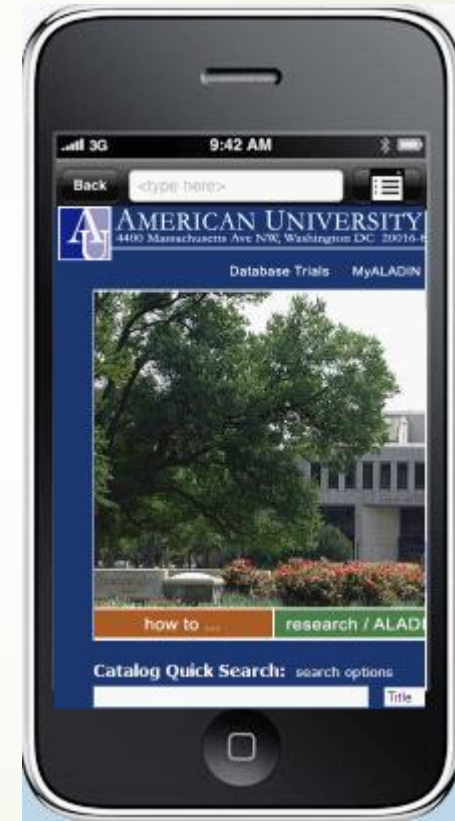
2/13	Open 9 am - 9 pm
2/14	Open 9 am

how to ... research / ALADIN online services classes & tutorials about the library

Catalog Quick Search: search options

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www.library.american.edu





# Available options

- Separate websites for desktop and mobile devices
  - Running parallel websites for both users
  - Strip-down separate website for mobile users
  - Mobile only version of existing website
- Single design for all the devices
  - Compromise on content
  - Compromise on layout and designs
  - Compromise on input options
- Website for desktop users and an application for mobile devices
  - Multitude platform and development issues



# How to decide on the need

- User inputs
  - interviews
  - Page statistics of desktop website visits
  - Mobile using habits of the users
    - Familiarity of using mobile devices for browsing
    - Access points of mobile devices
    - Content preference while browsing mobile devices
  - Mobile application vs. mobile website
- 

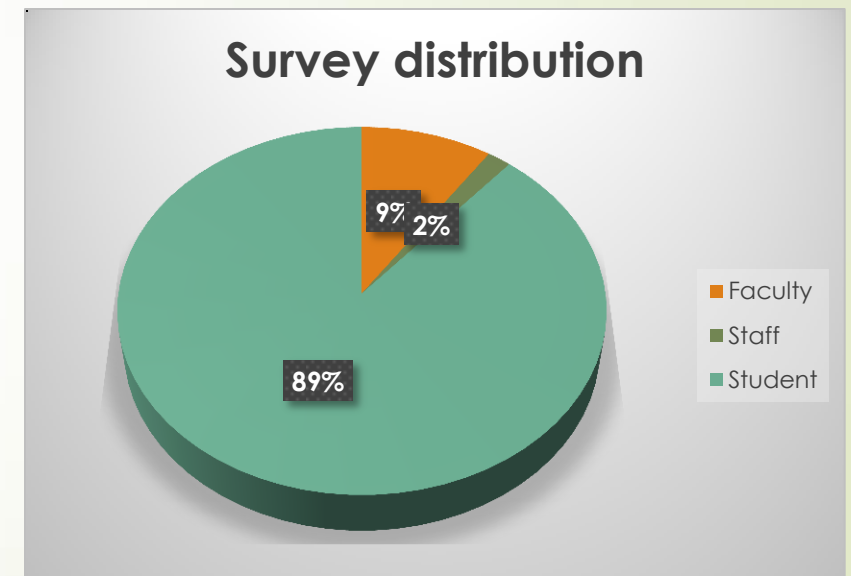
# The survey - Population

Survey Population 221 100%

➤ Faculty 22 9%

➤ Other Staff 4 2%

➤ Students 195 89%





# Results and Decision making

- Majority of users use smartphones (95%)
- Willingness to accept mobile solution
- Most users are familiar with using internet through mobile phones (97%)
- Most users use datapack and pay for using internet (68%)
- Balance content but preference is text
- OPAC as the important link followed by E-Resources and Circulation (85%) & (68%)



# Single design for multiple devices

- Problems of running parallel websites
  - Updating
  - Developing
  - Maintaining two different websites
- Responsive web design
- Single design which can accommodate variety of devices



# Responsive web design

- ▶ A single design for multiple devices
- ▶ A flexible grid and layout and intelligent use of CSS media queries to automatically switch and accommodate different resolutions
  - ▶ Adjusting screen resolution
  - ▶ Flexible images
  - ▶ Maximum width 100%
- ▶ wireframe design structure with flexible column grids to readjust the content and fluid design process
- ▶ CSS3 media queries
  - ▶ Min width, max width, orientation, colour
- ▶ Responsive layout
  - ▶ Showing or hiding content with flexible layouts
- ▶ Automatic zooming and easy navigation
  - ▶ Touch screen vs. cursors



# Responsive web design – The content

- Basic design recommendations of the mobile web best practices report
- Platform & device independent website design
- Easy menu button selection
- Single column design for mobile websites (to avoid automatic zooming all the way to fit the screen)
- Minimal navigation
- Avoid flashy and Unsupported file types (flash, java scripts, applets, frames, pop-ups, scrolling)

# The Result

www.library.uniswa.sz

University of Swaziland  
The Library

Home E-Resources OPAC Staff New Books SDIC UNISWA IR

## UNISWA Library

The Mission of UNISWA Library is to provide efficient service and access to quality academic information resources to support the instructional, Learning, Research and Administrative functions of the University.

**Print Resources:** A total of more than 225, 500 monographs and a current subscription to 325 print journals with back issues for more than 600 titles.

**Electronic Resources:** A growing collection of databases with 24 Subscribed and gift electronic journal databases covering all the subjects areas covered at the University.

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# Challenges



- ▶ Outdated browsers > IE 7.0 problem with media query transfers
  - ▶ Conditional css with an option to identify the browser
- ▶ External links with non responsive content
  - ▶ Electronic databases
  - ▶ Separate windows as target windows
- ▶ Online Public Access Catalogue dynamic html on the fly
  - ▶ Object windows as option
- ▶ Unable to exploit mobile specific applications
  - ▶ location, push, barcode scanning, QRcode, camera etc.,

# Testing and validation

- ▶ Desktop website – straightforward testing methods
- ▶ Mobile simulation – cumbersome process
  - ▶ Mobile Okchecker (<http://www.w3.org/TR/mobileOK/#check>)
- ▶ Testing and Validation as an ongoing process

The screenshot displays the W3C mobileOK Checker interface. At the top, the address bar shows the URL <http://www.library.uniswa.sz>. The main result area features a horizontal progress bar that is 76% complete, with a green arrow pointing to the 76% mark. Below the progress bar, there are two summary sections: 'FAILURES PER SEVERITY' and 'FAILURES PER CATEGORY'. The 'FAILURES PER SEVERITY' section shows 0 Critical, 0 Severe, 3 Medium, and 3 Low failures. The 'FAILURES PER CATEGORY' section shows 2 failures for 'Rely on Web standards', 2 for 'Check graphics and colors', 1 for 'Keep it small', and 1 for 'Use the network sparingly'. At the bottom, a table provides details on page size (43.6KB) and network usage (4 requests). The table below shows the following data:


Size	Type	URI	incl. redirects	Type	URI	Redirects
71KB	image	<a href="http://www.library.uniswa.sz/oe/images/ima04.jpg">http://www.library.uniswa.sz/oe/images/ima04.jpg</a>	0	document	Resource under test	1

# Useful mobile website testing tools : MobiReady

## mobiReady

YOU ARE HERE: [home](#)

Username:  Password:    
Use your mobiForge sign-in - [Sign up@mobiForge](#) - [Lost password](#)




The mobiReady testing tool evaluates **mobile-readiness** using industry **best practices** & standards.

The free report provides both a score (from 1 to 5) and in-depth analysis of pages to determine how well your site performs on a mobile device.

[How do you Compare?](#)

[Page Test](#) [Markup Test](#) [Site Test](#)

 Provides results for a single page

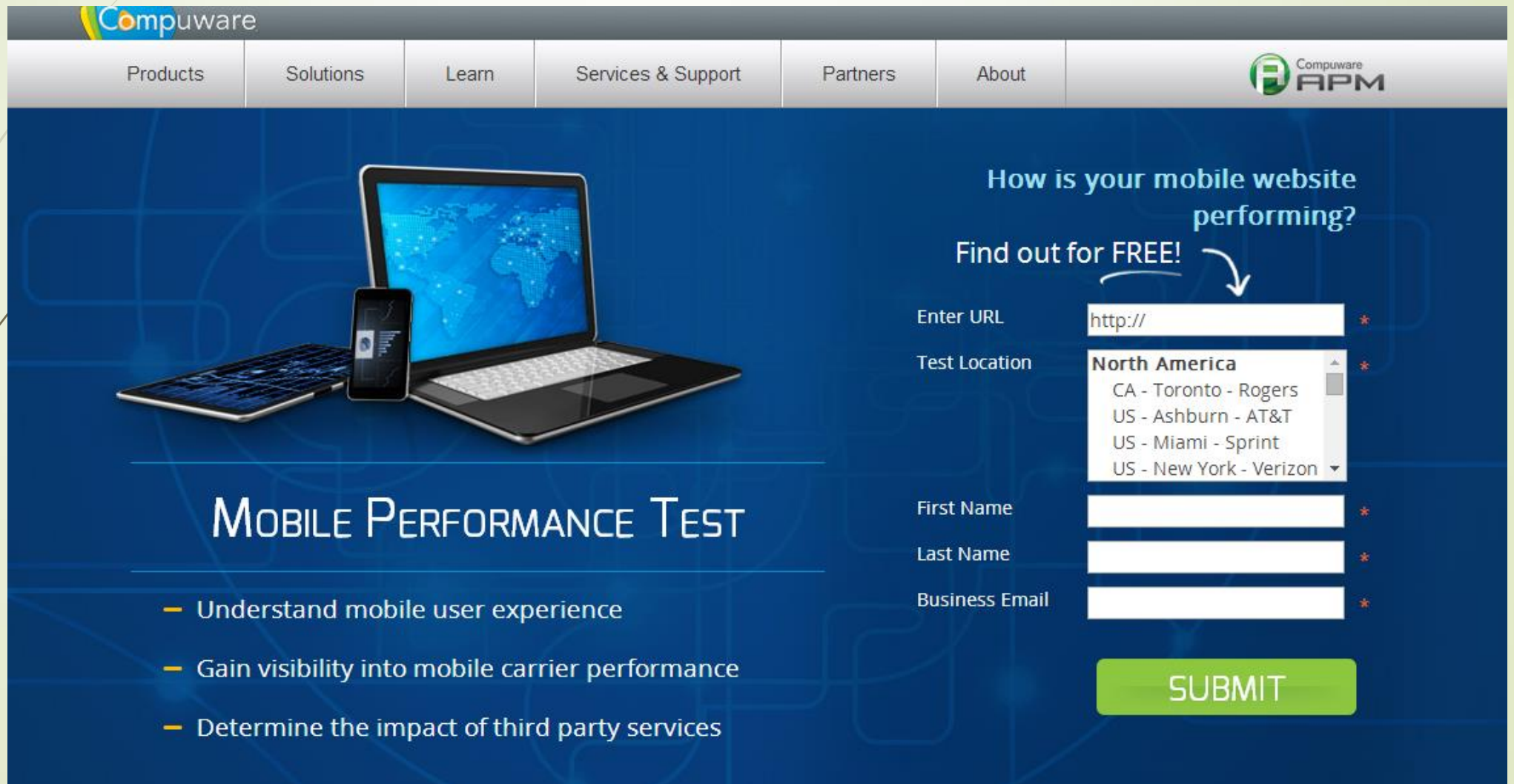
- ✓ dotMobi compliance
- ✓ W3C mobileOK tests
- ✓ Detailed error reports & much more!

Enter the URL of the page you want to check

URL

[More Options](#)

# Useful mobile website testing tools : Gomez



The screenshot displays the Compuware APM website interface. At the top, the Compuware logo is on the left, and the APM logo is on the right. A navigation menu includes links for Products, Solutions, Learn, Services & Support, Partners, and About. The main content area features a blue background with a laptop and a smartphone. The text 'MOBILE PERFORMANCE TEST' is prominently displayed. Below this, three bullet points list the benefits of the tool. To the right, a form titled 'How is your mobile website performing?' asks users to 'Find out for FREE!'. The form includes fields for 'Enter URL' (with 'http://' entered), 'Test Location' (a dropdown menu showing 'North America' and several carrier/location options), 'First Name', 'Last Name', and 'Business Email'. A green 'SUBMIT' button is at the bottom right of the form.

Compuware

Products Solutions Learn Services & Support Partners About

Compuware APM

How is your mobile website performing?  
Find out for FREE!

Enter URL

Test Location **North America**  
CA - Toronto - Rogers  
US - Ashburn - AT&T  
US - Miami - Sprint  
US - New York - Verizon

First Name

Last Name

Business Email

**SUBMIT**

## MOBILE PERFORMANCE TEST

- Understand mobile user experience
- Gain visibility into mobile carrier performance
- Determine the impact of third party services

# Dotmobi emulator

dotMobi™

Internet made mobile.  
Everywhere, every device.



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dotMobi's technology is at the core of the best mobile and web experiences

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[DeviceAtlas »](#)



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Adobe

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# CrossBrowser Testing

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Support: 1-888-927-6973

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Cross browser test your website in dozens of browsers with instant results

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or

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[View All](#)



# Other useful mobile website testing tools

- Opera mini simulator
- Adobe Device Central CS5
- iPad peek
- Iphoney
- W3C mobileOK Checker
- GoMoMeter



# Conclusion

- Close to 1100 mobile devices registered in our device registration system which share the access point
- With minimum graphics and using most of the recommendations of minimum design recommendations a good library website is possible
- Provide OPAC, E-Resources and Circulation as main links
- As a future project create a separate app for OPAC