IT Summit 2014
Going Mobile: Moving Scholarship Universe To The Small Screen

Presenter: don-E Merson, Scholarship Universe
The dilemma we all know
Paper!
Plastic!
The solution

Now you’re thinking!

Paper or Plastic?
I’m NEITHER.
Desktop or Mobile?
Programming for desktop...
Program for mobile
So what do you do?
Responsive-It’s kind of both

Now you’re thinking!
This is our story...
/Who (am I|are we)?/

- don-E Merson, Architect

CURRENT TEAM

- Ken Downs
  Program Manager

- don-E Merson
  Applications Systems Analyst/Developer, Principal/Architect

- Emily Romero
  Student, Research Team Lead

- Kyra Miller
  Student, Application Programmer

- Rahul D. Kamath
  Student, Application Developer

- Lauralyn P. Gonzalez
  Student, Researcher

- Rafael Garcia
  Student, Researcher/Developer

- Sam Rodriguez
  Student, Researcher

- Amit Kumar
  Student, Application Developer

- Rahul P. Kamath
  Student, Application Developer

- Mariah E. Falshaw
  Student, Researcher

- Susana Torres
  Student, Researcher
What is Scholarship Universe?

Apps
Welcome back!  Your To-Do's:  Deadlines:

See your scholarships »

About Calendar
Welcome back!

Update:
We have made some changes!
Please email OSFA-SU@email.arizona.edu if you have any questions or suggestions.

What's New
Check out the latest improvements, changes, and updates to the system.
Coming Soon

Your Feedback
We are in the process of a major site redesign. Please use the link below to tell us your thoughts about what works, what doesn't, and what you'd like to see us improve next.
Tell us what you think »

Your Settings
Manage your subscription and frequency for email notifications from Scholarship Universe.
Coming Soon
Admin Application (SUAA)
# Reporting Application (SURA)

## Scholarship Universe Reporting Application (SURA)

### Current Activity

![Bar chart showing the number of pages per minute over the last 20 minutes.](chart.png)

<table>
<thead>
<tr>
<th>Minute on the hour</th>
<th># of Pages Per Minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
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<td>5</td>
<td>0</td>
</tr>
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<td>6</td>
<td>0</td>
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<td>19</td>
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<td>20</td>
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### Table of Activity

<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
<th>App</th>
<th>Machine</th>
<th>Browser</th>
<th>Browser Information</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donald</td>
<td>Merson</td>
<td>susa</td>
<td>SU-WEB1</td>
<td>Google Chrome</td>
<td>45.0.2454.101</td>
<td><a href="mailto:dmerson@email.arizona.edu">dmerson@email.arizona.edu</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mozilla/5.0</td>
<td>(Windows NT 6.3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WC3104; Apple</td>
<td>Webkit/537.36</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(KHTML, like</td>
<td>Gecko)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chrome/45.0.2454.101</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Safari/537.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mozilla/5.0</td>
<td>(X11; Ubuntu/18.04)</td>
<td></td>
</tr>
</tbody>
</table>
Automated Email System (AES)

Example URL for Campaign:
<https://scholarshipuniverse.arizona.edu/suha/?utm_source=COMP&utm_medium=Email&utm_content=##CampaignAor##&utm_campaign=Reminder&vid=##vid##&Login Now!>

Version A

Subject A:
##FirstName## College of Medicine: Phoenix Scholarship

Body A:

Dear ##FirstName##,

According to our records, you indicated that you're a student in the College of Medicine: Phoenix. Their general scholarship application is currently available in Scholarship Universe and you may be eligible to apply. The deadline for this scholarship is...
Yenta

What business is yenta in?

Yours.
Machine Matcher (SUMM)

- Web Crawler
- Machine Learning
- RegWhy – a better reg ex engine
- Bringing to students very soon.

WE ARE CRAWLING THE WEB

SO YOU WON’T HAVE TOO
We have cred...

Models of Excellence Award - 2015
Scholarship Universe was recognized as a Models of Excellence by University Business for being an innovative and effective inter-departmental initiative that bolsters student success. University Business is the leading publication for senior managers at colleges and universities throughout the United States, reaching 75,000 leaders who manage enrollment, technology, business, finance, facilities and academic affairs.

Campus Technology Innovators Awards - 2012
Campus Technology is one of higher education’s top information sources. Out of 354 nominees, Scholarship Universe was recognized as an extraordinary technology solution and it was one of only two projects to win the national innovator award for Student Systems and Services!

ADDY Award – 2011
AAF Tucson recognizes the best in advertising through several awards and award programs, including the national ADDY Awards competition. Scholarship Universe won a bronze ADDY Award for our website, banners, tent and ads!
Our story...

- Incorporated Responsive Design
- But not everywhere...
  - I will explain why
- How we did it
- What we learned
Who this talk is for..

- General development audience
- Talk about what to do
- Will show general idea of how
- Talk to me for more geeky details
Your first step is...

- Measure
- We used Google Analytics
What to measure..

- Bounce Rate
What to measure..

- Bounce Rate
- Caveats
What to measure...

- Mobile Percentage
- Session Duration

<table>
<thead>
<tr>
<th>Device Category</th>
<th>Acquisition</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sessions</td>
<td>% New Sessions</td>
</tr>
<tr>
<td>Desktop</td>
<td>4,401</td>
<td>34.65%</td>
</tr>
<tr>
<td>Mobile</td>
<td>399</td>
<td>43.36%</td>
</tr>
<tr>
<td>Tablet</td>
<td>148</td>
<td>44.59%</td>
</tr>
</tbody>
</table>
What we have measured..

- Over million page views in first six months
- 8.23% increase over previous year
- Bounce rate dropped 36.71%
- Allowed us to validate our work
Create new types of measurements

- Not everyone clicks on campaign link
- AES tracks every page for any one who received an email

<table>
<thead>
<tr>
<th>Date of Login</th>
<th># Unique Logins</th>
<th>Campaign Sent</th>
<th>Frequency</th>
<th>Population</th>
<th># Sent</th>
<th>% Effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/26/15</td>
<td>31</td>
<td>06/26/15</td>
<td>One Time</td>
<td>Active Student With College</td>
<td>346</td>
<td>0.089%</td>
</tr>
<tr>
<td>06/27/15</td>
<td>15</td>
<td>06/26/15</td>
<td>One Time</td>
<td>Active Student With College</td>
<td>346</td>
<td>0.043%</td>
</tr>
<tr>
<td>06/28/15</td>
<td>14</td>
<td>06/26/15</td>
<td>One Time</td>
<td>Active Student With College</td>
<td>346</td>
<td>0.040%</td>
</tr>
<tr>
<td>06/29/15</td>
<td>20</td>
<td>06/26/15</td>
<td>One Time</td>
<td>Active Student With College</td>
<td>346</td>
<td>0.057%</td>
</tr>
<tr>
<td>06/30/15</td>
<td>26</td>
<td>06/26/15</td>
<td>One Time</td>
<td>Active Student With College</td>
<td>346</td>
<td>0.075%</td>
</tr>
</tbody>
</table>
But remember...

“Not everything that counts can be counted, and not everything that can be counted counts.”

-Albert Einstein
Step 2: Steal someone else’s work...

"Good artists copy, great artists steal."

- Pablo Picasso
What we took...

- Bootstrap
- UA design group menus
Things to consider

- Play nice with the UA
- Know what **YOU** do well
- Proven track record
- Large community
- Commitment to compatibility
- Build for change
Step 3- Pick your battles

- What has the highest impact to customer?
- What has the lowest time to deliver?
Remember...be this guy

Premature optimization is the root of all evil

- Donald Knuth
Don’t be this guy...

OPTIMIZE

ALL THE THINGS
Our first battle plan

- Upgrade SUSA Master page
- Pandora-got out of the box!
- Scholarships List Page
- Create columns that hide in the table
- Left SUDA and SUAA the same
Step 4 – Test it out

“No battle plan survives contact with the enemy.”

Colin Powell

© Lifehack Quotes
Only test ...

- The scenarios you want to work in production
- But not in production
Mobile adds new challenges

- Screen size
- Browsers
- Form Factors
- You can’t duplicate every scenario
- But there are tools to help
Lots of emulators
Google Chrome Developer Tools
Emulators approximate

- Test on real devices if possible
- Can borrow from library!

**Laptops and Netbooks**

All our libraries have laptops and MacBooks which are available for 72 hour checkout to UA students.

All our libraries have netbooks which are available for 120 hour (5 days) checkout to UA students.

**iPads and Android Tablets**

The Main Library has iPads, iPad Minis, and Android tablets available for 72 hour checkout to UA students.

The Science-Engineering and Fine Arts Libraries have iPads available for 72 hour checkout to UA students.
Test what people use

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Sessions</th>
<th>% Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>35,452</td>
<td>56.21%</td>
</tr>
<tr>
<td>Macintosh</td>
<td>21,753</td>
<td>34.49%</td>
</tr>
<tr>
<td>iOS</td>
<td>3,462</td>
<td>5.49%</td>
</tr>
<tr>
<td>Android</td>
<td>1,339</td>
<td>2.12%</td>
</tr>
<tr>
<td>Chrome OS</td>
<td>852</td>
<td>1.35%</td>
</tr>
<tr>
<td>Linux</td>
<td>193</td>
<td>0.31%</td>
</tr>
<tr>
<td>Windows Phone</td>
<td>21</td>
<td>0.03%</td>
</tr>
</tbody>
</table>
Think hard about it...

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Sessions</th>
<th>% Sessions</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
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<td>21</td>
<td>0.03%</td>
</tr>
</tbody>
</table>

Screen Sizes
Step 5-Deliver

- What do you call a product where customers are reporting no problems?
  - Not Deployed!
- Deploy!
Step 6 - Solicit feedback

Redesign Feedback Form

1. How often do you use Scholarship Universe?
   - Once a day or more
   - Once or twice a week
   - Once or twice a month
   - A few times each semester
   - A few times each year
   - Less than once a year
   - This is my first time using Scholarship Universe

2. Compared with your previous experience with Scholarship Universe, how much more or less do you like the layout as it currently appears?
   - I like it much more now
   - I like it a little more now
   - I like it about the same
   - I like it less now
   - I like it much less now
   - I can’t tell what’s changed or am not sure

3. Compared with the last time you used Scholarship Universe, is information more or less difficult to find now?
   - Information is much easier to find now
   - Information is easier to find now
   - Finding information is about the same as before
   - Information is much harder to find now
   - Not sure

4. What is one thing you’d like to improve in Scholarship Universe?
   
   Character limit: 500
Winning!

- Some people will:
  - Like it
  - Hate it
  - Try to find out why

- What does the data say?
- If you can ->do focus groups
Step 7 - Evaluate

- Look at big picture
- Don’t get caught by endowment effect
- Restart process
Does it all have to be mobile?

- How will people use it?
- How much information will people need?
When mobile is not the answer

- Wide grids with lots of data
- Displaying full documents on the screen for users
General Principles

- Is it possible to make this smaller but it is still usable?
General Principles

- Is it possible to make this smaller and it is still usable?
- Does it pull so much data that a mobile phone with balk?
General Principles

- Is it possible to make this smaller and it is still usable?
- Does it pull so much data that a mobile phone would balk?
- Are the people going to use this page “on the road?”
Some of apps are 100% mobile

- SUDA
- SUAA
- Sometimes you need...
- A soft hardness
What kind of issues have we found

- Tables
  - We call them Grids
  - I will compromise => Tabular Data
- Really long names
- Too much data
  - What to hide or show
- Too much JavaScript
- HTML in the database
Tabular Data (Grids)

- Problem
  - Too many columns to display on mobile
- Solutions
  - Hide less important columns
  - Allow scrolling to right
  - Change to card view
  - New Problem
    - Don’t have sort ability
    - Had to create filter/sorting component
Too many words...

Problem

- The values from certain fields can vary
- Example
  - Scholarship Names
- Solution
- Use bootstrap column classes
  - Col-lg-(number)
  - Row
Resizing the screen

- Problem
  - How to display data so it flows down the screen

- Solution
  - Once again we use default bootstrap classes
  - Media breaks
  - Use groupings

- Complaints
  - We can really do better by adding more media breaks
Conflicts

- Problem
  - JavaScript frameworks break each other
  - Bootstrap tooltips
    - Broke due to kendo and jquery conflict

- Solution
  - Pay attention to the order your javascript
  - .noconflict
  - Quit adding more JavaScript frameworks
Menus

- Problem
  - Dropdown menus on mobile
- Don’t use multi-layer menus
Menus

- Solution
  - Implemented slickmenu
  - Implement UA group design colors
HTML in the database

- Problem
  - Specifically styles in the database
HTML in the database

- Problem
  - Specifically styles in the database

- Solution
  - Update statements
  - If class=>update definition
  - Never again!
Some things we are going to try

- Our framework allows us to display different pages programmatically
  - .mobile
  - Uses user-agent

- Need to do a better job at minification
  - Once again have a built in framework

- Mostly just try to suck a little less everyday
Some personal notes on mobile

- If you don’t have a mobile friendly site
  - You can lose people
- Too much mobile
  - You can lose people
- ESPN
  - Don’t use their product anymore
- Unnamed U of A site I no longer use
In Conclusion

- Mobile migration is not a one time thing
- Use the steps given here
  - Set up measurements
  - Steal stuff you are not good at
  - Pick Your battles
  - Test it out
  - Deliver it
  - Solicit Feedback
  - Evaluate
- Learn from our mistakes
- Deploy a little bit at a time
- Bring your own bags to the grocery store
That's all Folks!
Questions???