

The Struggle is Real: Learning Responsive Web Design with the Bootstrap Framework

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Introduction/Need for Innovation

Sixty-eight percent of Americans have smartphones, 45% have tablet computers, and the market continues to grow (Anderson, 2015). From 2010 to 2015, the use of smartphones was up 394% and tablet usage increased 1,721% (Dreyer, 2015). As the use of these mobile devices continues to increase, traditional computer ownership is starting to decline. In 2015, 78% of adults under 30 years old own a laptop or desktop, compared with 88% in 2010 (Anderson, 2015). This shift in how consumers access the Web has significant implications for website design. Traditional fixed-width websites are problematic because they give users a limited experience and require a site redesign every few years to accommodate change (Gardner, 2011).

Responsive web design is an approach to building websites to provide users with an optimal viewing and interaction experience across a wide range of devices. This approach to web design allows a single website to respond to the screen size of the device on which it is being viewed. Organizations can benefit from responsive web design because it is more cost effective and provides a better user experience (Gardner, 2011). Although there are many ways to create a responsive website, using the Bootstrap framework is the most popular and is accessible for people of all skill levels, projects, and devices (Bootstrap, n.d.). Bootstrap allows “frontend web development to be catapulted forward by building on a stable foundation of forward-looking design and development” (Spurlock, 2013, p. 1) leading the way for responsive web design. Bootstrap comes with many useful elements and is easy to use for those who have a basic understanding of CSS, HTML, and JavaScript.

Google emphasizes websites should be built for mobile-friendly viewing using responsive web design (Google Developers, 2016) and this approach to designing websites is now an industry best practice. Because of this, it is imperative agricultural communications students understand these design principles and what it means for online communication efforts. Using Bootstrap as a responsive web design framework is an ideal way to introduce students to current web design standards. The purpose of this innovative idea was to integrate Bootstrap in a web design course and determine students’ opinions of this approach to responsive web design.

How it Works

In the Convergence in Agricultural Media course at Texas Tech University, students build upon their knowledge of web design gained in a pre-requisite course to create a responsive professional online portfolio using Bootstrap in Adobe Dreamweaver. During the first four weeks of class, the students were taught what responsive web design is, why it is important, and the coding language necessary to make it work. In the fifth week, the students were introduced to Bootstrap (getbootstrap.com) and how to use it in Dreamweaver. The instructor also provided some resources students could use if they needed additional help using Bootstrap.

During the next few weeks, the students worked independently on their websites and in class as time allowed (other projects were due during this time). With two weeks remaining in the course, the students had to have a draft of their responsive website ready and showed these to their peers in class to gather feedback. On the last day of class, students continued to work on their sites along with assistance from the instructor and teaching assistants. The sites were then due within

a week of this last class session with additional help sessions scheduled as needed. Although students were provided with help as requested, the creation of their responsive websites was largely an individual undertaking.

Results to Date/Implications

Fourteen students completed the course in the Spring of 2016. Based on student reflection papers, the majority of students agreed that using Bootstrap to create a responsive website was difficult at the beginning, but they eventually grasped the concept. One student said: “I really like Bootstrap. I think once you understood the basic concepts, Bootstrap is very user friendly and you can personalize easier with it.” Another student said: “It was hard and slightly confusing, but once you sat down and worked on it, it wasn’t that bad.” Students were allowed to use templates they could find online, which benefitted some but not others. One student said: “It was very confusing in the beginning. I ended up using a template, which made it easier, but I still did not have a complete understanding for the program.” Another student said: “Using and having access to a template was helpful.”

When asked what they would do differently, almost every student said they wished they had more time to work on their website, and that they would have started working with Bootstrap earlier in the semester. One student stated: “I would plan out my website ahead of time and familiarized myself with more concepts.” Another student said: “I would start to focus more on the website earlier on.”

Students said the most difficult aspect of using Bootstrap was also the best part of their experience – having to teach themselves how to use the framework. One student stated: “The most challenging aspect was the time it takes to do the trial and error process, but the best part was the feeling you get when you finally figure out how to do something on your own.” Another student said: “Learning how to use Bootstrap as a whole and re-learning some of the web basics was the most challenging, but I love how we have to figure it out for ourselves and think critically.”

Future Plans/Advice to Others

Using the Bootstrap framework in Dreamweaver to make a responsive website will continue to be used in future semesters. More class time should be dedicated to teaching the students about Bootstrap and responsive web design, perhaps by creating an entire site together then having students create their own. Students did note that more time to complete the website would have been beneficial. Although they did have to submit a proposal for their site, this was due before they learned the capabilities in Bootstrap, which certainly influenced their design outcomes. Overall, students need to understand how changing consumer behaviors (i.e. using mobile devices) impacts why websites are created using responsive website design.

Costs/Resources Needed

Students needed access to Adobe Dreamweaver, which was required in this class. Dreamweaver Creative Cloud comes with Bootstrap integrated; however, the Bootstrap framework can be downloaded for free from www.getbootstrap.com. A subscription to the Adobe Creative Cloud (with more than 20 apps) can be purchased for \$20/month. The instructor invested time learning Bootstrap and provided links to responsive website examples and resources.

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