

MULTI-DEVICE LEARNING

BY AMIT GARG

Tablets and smartphones have taken over the world in the last few years and we are now in a multi-device world – one where most of us are using three or more devices during a typical day. Google set the stage for multi-device learning, when it talked about the multi-device world in its report, called *The New Multi Screen World* (Google 2012).

The multi-device world is evolving

Since the publishing of the Google report, the world has changed quite a bit. *It suggested that device choice depends on context* (Google 2012).

However as the smartphones have become larger in size there is an overlap in tasks supported by smartphones and tablets. Interestingly (maybe even

as a consequence of the above), tablet sales in the US dropped for the first time in Q4 of 2014. Since the boundaries between tablets and smartphones are blurring, you may find yourself using either of them purely for convenience, at least for certain tasks. At your home if you wish to know the football scores you might reach out for your tablet, than a smartphone, if the former was lying closer to you. So convenience may trump context, at times. *It was also suggested that tablets keep us entertained* (Google 2012).

The Google report went on to categorise different device types as being suitable for specific types of tasks. So the personal computer kept us productive, smartphone kept us connected and the tablets kept us entertained. The tablet was supposed to be the media consumption device. However later at the Gartner Symposium, Google's Chairman, Eric Schmidt (2013) said *"It looks to us like the majority of enterprise computing is being done on mobile devices, in particular on tablets"*. So very quickly, the tablet had transformed from being an 'entertainment device' to a 'computing' device.

It is apparent that the multi-device world is evolving rather quickly. The pace is not going to slow down. Wearables are coming into picture, be it Google Glass or similar augmented reality gadgets or smart-watches. Google is also experimenting with embedding touch sensitivity in our clothes (Project Jacquard) or bringing non-touch interactions with devices (Project Soli). The smart thing to do is to get started with multi-device learning without waiting for the world to settle down. You might make a few mistakes, but will learn along the way.

Types of multi-device experiences

Responsive eLearning seems to be the only thing that most people think of when it comes to multi-device learning. Sure, it does make sense and is probably the easiest one to begin with. However,

there is more to multi-device learning, than responsive eLearning.

In her book *Designing Multi Device Experiences*, Michal Levin defines three primary types of multi-device experiences that can be created – Consistent, Continuous, and Complementary.

Consistent

The experience is 'consistent' when it is replicated across device types in terms of set content and core features. Some adjustments are however made to accommodate screen size and interaction model. A good example is Google search. It delivers the core experience is a very consistent manner on all device types. Netflix is another example of consistent experience on different device types. The only issue with 'consistent' experience is that it provides everything on all devices without considering the 'context'. Responsive eLearning falls in this category. It aims to deliver 'consistent' experience across a range of devices, without considering the context of usage.

Continuous

The experience is 'continuous' when it shifts between devices. It could be a continuation of the same action or progressing along a sequence of actions. A great example of this is Kindle. You can leave a book midway on one device and begin from the same place on another device. This is like bookmarking in eLearning courses. So, responsive eLearning with bookmarking would allow learners to continue their learning experience from one device to another. An eLearning course for desktop/tablets followed by performance support steps/ checklist on mobile to supplement the course is a 'continuous' experience that leverages the devices to the best of their capabilities.

Complementary

The experience is 'complementary' when devices complement each other creating a new type of experience. There

are two main forms of relationship here – collaboration and control. A good example of collaboration is the *Real Racing 2* (Bryan 2011) app/ecosystem where you can pair multiple devices and use your individual device(s) to race against friends. Another example is *KL Dartboard* (iTunes 2011) where you use your phone to ‘throw’ darts on to the dartboard that appears on the tablet. In learning we could possibly have game-based learning like the real racing where participants compete with each other, though not too many learning situations present themselves to this type of experience.

It would be smart to create the most appropriate eLearning experience using multiple devices at your disposal and not be restricted to responsive eLearning alone.

For whatever experience you decide to create, following smart operational items would be helpful.

Older browsers

When developing multi-device eLearning, desktops are more than likely to be on your target device list. Like most organisations, you may find yourself using Internet Explorer 8 or lower versions. It is for a good reason – some of your critical business applications have been designed to work in that specific version of Internet Explorer and you cannot just remove the business application. For any responsive solutions that you create, you will need to make it a hybrid (HTML 4 + 5) code to make it work on older browsers as well as the newer ones found on tablets and smartphones. Build fallback options in your code. You may even end up using Flash as a fallback from audio/video players for Internet Explorer.

Optimise

We are all becoming very impatient with mobile web. Research suggests that 74% of mobile phone users will only wait for five seconds or less for a page to load (Gigaom Research 2011). Some of the options to optimise your multi-device

solutions are:

- lazy loading, whereby only small portions of content load as the user scrolls down the page
- use .jpg vs .png as .png is heavier in size
- combine common files in the package to download them only once
- reduce process time for each user interaction by using appropriate coding.

Testing

With multi-device, the testing landscape has changed dramatically. Previously, when Flash was the default eLearning development tool, you could test a course on just one personal computer and be sure that it would work everywhere. Flash player was isolated from the vagaries of the operating system, device types, browsers, etc. However, with multiple devices at hand, there is no such player, which isolates the course from the effects of all of these. Each browser handles HTML5 code slightly differently, device sizes and resolutions have an impact on how a page is displayed, and simulators and emulators do not give reliable results. All of this leads to an increased testing effort and time. It is even advisable to test as much as possible on physical devices.

Delivery

Very often the delivery of multi-device eLearning is assumed to be similar to traditional eLearning. It is not so. You can choose to deliver it via a Learning Management System (LMS), or directly through a weblink or even as an app if you want offline access. In terms of standard compliance you may want SCORM, or xAPI, or simply no compliance. If you deliver via an LMS ensure that the LMS functions outside the firewall of your organisation as more often than not LMSs are set to function within a firewall.

If you need offline access to the content, you may create custom apps or have an LMS app, which allows downloading of courses for offline access. It is always best to think through

the options at the beginning of the project and not leave this to the end.

It is not rocket science but it is not that simple either, and it certainly is not a ‘must have’ for every piece of learning that you create. It is important that multi-device learning be proposed and implemented in a ‘smart’ way as per the context and experience that one aims to create, to ensure it delivers on its promise.

References

- Bryan, M. 2011, *Real Racing 2 Gaining Amazing Multiplayer Features*, 5 October, viewed 25 June 2015, <http://appadvice.com/appnn/2011/10/real-racing-2-gaining-amazing-multiplayer-features>
- Google 2012, *The New Multi Screen World Study*, viewed 25 June 2015, <<https://www.thinkwithgoogle.com/research-studies/the-new-multi-screen-world-study.html>>
- iTunes 2011, *KL Dartboard*, 18 February, viewed 25 June 2015, <<https://itunes.apple.com/gb/app/kl-dartboard/id376234917?mt=8>>
- Gigaom Research 2011, *Consumers losing patience with the slow mobile web*, viewed 25 June 2015, <https://gigaom.com/2011/07/19/consumers-losing-patience-with-the-slow-mobile-web/>
- Levin, M. 2014, *Designing Multi-Device Experiences* O'Reilly Media, Massachusetts.
- Schmidt, E. 2013, *Google Chairman Eric Schmidt: Enterprises Love Tablets And That's A Surprise To Me*, Business Insider, viewed 25 June 2015, <<http://www.businessinsider.in/Google-Chairman-Eric-Schmidt-Enterprises-Love-Tablets-And-Thats-A-Surprise-To-Me/articleshow/23929765.cms>>

Amit Garg is Director – Custom Learning Solutions and Co-founder of Upside Learning. Amit helps organisations understand and implement eLearning and mLearning solutions. He has been listed in the 2015 Top Ten eLearning Movers and Shakers list for Australia-Pacific. Contact via amitgarg@upsidelearning.com