8 Things to Consider when Designing Interactive TV Experiences

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Abstract
TV viewing is a universal leisure and informational activity but technological advancements have changed the experience drastically in the past decade. Nonetheless, despite all of the technological developments in the TV space, there is still very little guidance for user experience professionals around how best to build and design TV products and interfaces. In this paper, we will present 8 things we have learned to keep in mind when designing interactive TV experiences.

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television, TV, user experience, design, interactive TV

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H.5.2. Information interfaces and presentation (e.g., HCI): User Interfaces: User-centered design.

Introduction
TV viewing is a universal leisure and informational activity. The TV viewing landscape has changed drastically in the past decade. Technology has enabled consumers to adopt time shifted viewing, offered them smart recommendations of what to watch, and opened up endless possibilities of amateur and consumer-generated videos to watch. Nonetheless, despite all of the technological developments in the TV space, there is still very little guidance for user experience professionals around how best to build and design TV products and interfaces. In this paper, we will present 8 things we have learned to keep in mind when designing interactive TV experiences.

1. Watching TV is (still) the primary task.
All too often we've seen designers, engineers, and innovators focus their efforts on exciting new features while ignoring primary TV viewing experiences such as channel surfing,

setting DVR recordings, or browsing an electronic program guide. These experiences may not seem that glamorous but they're critical to creating a great TV experience. We encourage designers of TV experiences to innovate and create new features and experiences but to not lose sight of users' primary tasks when using a TV: to find and watch video content. But even interactive TV experiences that focus on these primary tasks are of little value to TV users if they do not offer the video content that users want to watch.

2. TV is a shared device.

TVs that are designed as a linear or single-user device overlook the fact that in most cases a TV is owned by a home or shared space and not a single person. In designing for a good TV experience we must focus in augmenting a group's dynamic while still keeping in mind that the group is made up of individuals with personal preferences. A TV should not be identified with a single user by default but instead as a communal device that can offer customizable content to individuals. While there should be an option to consume content without having to log into an account, the option of creating multi-user accounts within one TV allows the flexibility for content to be recommended individually to a single user without inhibiting the shared TV experience. Allowing for a seamless transition between multi-user and single-user is key for a frictionless experience when switching between the two modes of usage. Recognizing that TV designs must target both a multi-user state and a single-user state will ensure a positive TV experience among groups and individual users.

3. The traditional remote control is still good for controlling a shared device.

Traditional remote controls are generally viewed with much disdain. They can be overloaded with buttons, making them cumbersome and difficult to use. We've also found in our research with different TV products that typing using a remote control and an on-screen keyboard is a frustrating experience for TV users of all technical aptitudes. Moreover, unlike the freedom of the desktop keyboard and mouse model or touch interfaces, the navigational paradigm of the traditional remote control of up/down/left/right/select places limits on the on-screen design of interactive TV experiences. Despite these limitations, the traditional remote control is a good interaction model for a shared device. The remote control itself is not attached to any one member of the household or a user account. The remote control does not represent an identity. It can be left on the coffee table or the couch and it belongs to whoever manages to get to it first.

4. Smartphone and tablet remote control apps show promise but also present some unresolved issues.

We have found that smartphone and tablet remote control apps can address some of the limitations of the traditional remote control. For users of smartphones and tablets, using these apps to browse for content tends be faster than using a traditional remote control and an on-screen content library. For designers, touch interfaces can provide more freedom in designing content browsing experiences. But the app interaction model assumes a 1-to-1, not 1-to-many, device-to-user model. It is unclear who has control of the TV when multiple users, each with their own smartphone and/or tablet, are in the room. Moreover, these apps don't address users who don't own smartphones or tablets. It is estimated that more than one third of Americans do not own a smartphone [1].

5. New interaction paradigms may not always be appropriate for TV.

New interaction paradigms such as gestural and voice interactions are innovative but they may not always be appropriate for TV. Gestural interactions in gaming have created a whole new genre of fun interactive games but attempting to control a TV interface using gestures is pretty tiring [2] and difficult for most users. Using voice to control a TV, on the other hand, can be easier for some tasks than using a traditional remote control but some users can't bypass the social awkwardness of using it in front of friends and family.

6. Time shifting has its place but a lot of TV is still viewed live.

Whether through streaming services, on demand services, or DVR recordings, many TV users watch TV on their own schedule. Despite the perceived popularity of time shifted viewing, a lot of TV programming is viewed when it is broadcast. Nielsen estimates that nearly 90% of TV viewing is live [3], and even among TiVo DVR users nearly 40% watch live TV [4]. Live TV experiences such as changing channels and using an electronic program guide are critical to the success of any interactive TV product.

7. TV is simple (in a good way).

TV is a device that has been integrated into the living spaces of many people around the world because it is simple to use. TV is a universal device without language, gender, age or education barriers that successfully works every time it is turned on. Very little instruction to no instruction is needed for someone to turn on a TV. It only takes a couple of quick moments to grasp the concept. The use of universal icons without text allows users across different language backgrounds to quickly learn how to navigate their TV and quickly enjoy content. Users expect content right when the TV is turned on and the traditional TV experience does that really well. As TVs become more integrated with internet features, they shouldn't feel like a computer or a smartphone where the user has to periodically or constantly reboot the device. Updates, that don't require a user's personal information, shouldn't interrupt or prompt a user for acknowledgement or approval. Updates that run in the background without interrupting the user's experience are best.

8. TV can be a private retreat.

While there is much focus on making content easy to share with friends and family, for some users TV is a guilty pleasure that they might not be willing to share with others. Many users see TV as an opportunity to detach from their daily routines, work relations, or even family. A TV user might not always want to share a TV recommendation or behavior with their family or friends [5]. Being able to give a user a private mode to consume content without feeling guilty would further customize and augment the TV experience of individual users. Allowing for privacy mode on TV would give the user control over what is shared and what is not shared which would help the user enjoy TV without boundaries.

About the Authors

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References

[1] Smith, A. U.S. Smartphone Use in 2015. Pew Research Center (2015) http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/.

[2] van Beurden, M., IJsselsteijn, W., and de Kort, Y. User experience of gesture-based interfaces: A comparison with traditional interaction methods on pragmatic and hedonic qualities. GW 2011: The 9th International Gesture Workshop (2011) http://access.uoa.gr/gw2011/proceedingsFiles/GW2011_32.pdf.

[3] Kondolojy, A. Nielsen Study Shows Vast Majority of TV Viewing is Still Done Live; DVR Viewing Beyond 7 Days is Extremely Rare. Zap2it (2013) http://tvbythenumbers.zap2it.com/2013/01/14/nielsen-study-shows-vast-majority-of-tv-viewing-is-still-done-live-dvr-viewing-beyond-7-days-is-extremely-rare/.

[4] Wauters, R. TiVo Research Claims Only 38 Percent Of Users Watch Live TV. TechCrunch (2012) http://techcrunch.com/2012/01/11/tivo-research-claims-only-38-percent-of-users-watch-live-tv/.

[5] Ali-Hasan, N. Exploring social media scenarios for the television. International Conference on Weblogs and Social Media (ICWSM) (2008).