

TV TURNS 80: STILL DUMB AFTER ALL THESE YEARS

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## DEDICATION

To Laura, my wife of 35 years,  
who remained supportive of my endeavor  
throughout the three and a half years of hard work  
it took to it took to accomplish this work and the all that  
preceded it. She, too was once a non-traditional  
student, an experience that has been both  
humbling and rewarding for  
both of us.

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## ABBREVIATIONS

ABC	<i>American Broadcasting Company</i>
AOL	<i>America Online</i>
AT&T	<i>American Telephone and Telegraph Company</i>
BBC	<i>British Broadcasting Company</i>
CBS	<i>Columbia Broadcasting System</i>
CEO	<i>Chief Executive Officer</i>
CRT	<i>Cathode Ray Tube</i>
FCC	<i>Federal Communications Commission</i>
FDR	<i>President Franklin Delano Roosevelt</i>
FM	<i>Frequency Modulated</i>
GE	<i>General Electric Corporation</i>
GTE	<i>General Telephone and Electronics Company</i>
HD	<i>High Definition</i>
HSN	<i>Home Shopping Network</i>
IP	<i>Internet Protocol</i>
IDTV	<i>Interactive Digital Television</i>
IT	<i>Information Technology</i>
iTV	<i>Interactive Television</i>
LCD	<i>Liquid Crystal Display</i>
MICD	<i>Mobile Internet-Connected Device</i>
MIT	<i>Massachusetts Institute of Technology</i>

MMORPG	<i>Massively Multiplayer Online Role-Playing Game</i>
NBC	<i>National Broadcasting Company</i>
NDRC	<i>National Defense Research Committee</i>
NTSC	<i>National Television Standards Committee</i>
OSRD	<i>Office of Scientific Research and Development</i>
RCA	<i>Radio Corporation of America</i>
RMA	<i>Radio Manufacturers Association</i>
STB	<i>Set-top box</i>
TV	<i>Television</i>
TVB	<i>Television Bureau of Advertising</i>
TV HH	<i>Television Household</i>
U&G	<i>Uses and Gratifications</i>
UHF	<i>Ultra High Frequency</i>
US HH	<i>U.S. Household</i>
VCR	<i>Video Cassette Recorder</i>
VHF	<i>Very High Frequency</i>
WWII	<i>World War II</i>



## INTRODUCTION

### **Television by the numbers**

Data from the U.S. Census Bureau and The Nielsen Company tell the story of television in America today: U.S. Households (US HHs) are tossing their TVs. More than a million fewer US HHs have a working television than just two years ago, marking the first nominal decline in TV Households (TV HHs) since early 1941, when the U.S. government, faced with impending wars, halted all production of commercial radio and television sets. Eight months later, the Japanese air force attacked Pearl Harbor.

These TV facts stand in sharp contrast to television's explosion into US HHs beginning with the end of WWII. There were fewer than four thousand television sets in the U.S. in 1935.<sup>1</sup> According to *The World Book Encyclopedia*, cited by The Physics Factbook,<sup>2</sup> there were "probably fewer than 10,000 [TV] sets in American homes" in 1945. Nielsen data reported by the Television Bureau of Advertising (TVB)<sup>3</sup> indicate that just five years later, there were 3.9 million TV HHs (nine percent of US HHs). By 1960, there were 45.8 million (87.1 percent), and 58.5 million in 1970 (95.3 percent). U.S.

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<sup>1</sup> Ritchie, Michael, Please Stand By: A Prehistory of Television (Woodstock, New York: The Overlook Press, 1994), 14.

<sup>2</sup> Glenn Elert, ed. Number of Televisions in the US. (New York: Brooklyn College, 2007). <http://hypertextbook.com/facts/2007/TamaraTamazashvili.shtml> accessed Mar 18, 2013.

<sup>3</sup> Television Bureau of Advertising, TV Basics: A report on the growth and scope of television (New York, 2012), 2. [http://www.tvb.org/media/file/TV\\_Basics.pdf](http://www.tvb.org/media/file/TV_Basics.pdf) accessed March 17, 2013.

Census Bureau's data<sup>4</sup> report that 97.3 percent of US HHs had complete plumbing facilities in 1980 while comparable Nielsen data<sup>5</sup> found more US HHs had television sets (97.9 percent). Nielsen's 1989-1990 survey found more than 93 million TV HHs, a penetration rate of 98.2 percent. In 2000, there were 102.7 million TV HHs, the penetration unchanged from ten years prior.<sup>6</sup> Most recent Nielsen data<sup>7</sup> compiled by TVB, report that 114.7 million U.S. homes contained at least one television in 2012. The average US HH no longer has 2.5 children; it has 2.9 televisions.<sup>8</sup>

According to Edgerton,<sup>9</sup> in 1983, the U.S. HH TV was turned on an average of seven hours. The typical American watched four hours of TV per day. In 2009,<sup>10</sup> the TV was on eight hours and 21 minutes. Adult women watched five hours and 31 minutes per day and adult men spent four hours and 54 minutes in front of the tube.

But while the number of TV HHs continued to grow through 2010, the percentage of TV HHs peaked fifteen years ago.<sup>11</sup> Even with Nielsen's analytical revisions of TV

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<sup>4</sup> U.S. Census Bureau, Historical Census of Housing Tables: Plumbing Facilities. <http://www.census.gov/hhes/www/housing/census/historic/plumbing.html> accessed Mar 17, 2013.

<sup>5</sup> Television Bureau, 2

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> The Nielsen Company. Television Audience 2009 (New York: The Nielsen Company, 2010), 4. [http://www.nielsen.com/content/dam/corporate/us/en/newswire/uploads/2010/04/TVA\\_2009-for-Wire.pdf](http://www.nielsen.com/content/dam/corporate/us/en/newswire/uploads/2010/04/TVA_2009-for-Wire.pdf) accessed Mar 17, 2013.

<sup>9</sup> Edgerton, Gary R. The Columbia History of American Television (New York: Columbia University Press, 2007), xi.

<sup>10</sup> Television Bureau, 6

<sup>11</sup> U.S. Census Bureau, Statistical Abstract of the United States: 2008 (Washington, D.C.: Table 1099, Utilization of Selected Media: 1970 to 2006) <http://www.census.gov/compendia/statab/2008/tables/08s1099.xls> accessed Mar 18, 2013.

penetration estimates for HHs by race and ethnicity beginning in 1999, most recent data from The Nielsen Company report the penetration of TV into US HHs fell to 97.1 percent in 2012.<sup>12</sup> Nielsen attributes the decline of 1.2 million TV HHs to (1) changing U.S. demographics including a small but growing subset of young urban consumers who eschew paying for television content; (2) the digital transition of 2009 that required new set-top boxes (STBs) for continued reception on analog television sets; (3) a slow U.S. economy; and (4) the availability of multiple platforms of electronic media: the effects of all these factors Nielsen calls “unclear.”<sup>13</sup>

It is perfectly clear, however, that while television remains a behemoth presence in US HHs, its penetration – and hence its influence – is waning. Census Bureau statistics reveal a correlation between the rapid growth of mobile Internet-connected devices (MICDs) and television’s fifteen-year decline in the percentage of TV HHs. MICDs – smartphones, iPod Touches, tablets, and notebooks such as iPads and Kindles Fires – continue their rapid growth in the U.S, a nation where more than seventy-one percent of US HHs were connected to the Internet in 2010 and more than sixty-eight percent accessed it via broadband connection. Twenty-eight percent U.S. adults accessed the Internet via a cell phone or mobile device.<sup>14</sup>

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<sup>12</sup> Television Bureau, 2

<sup>13</sup> The Nielsen Company, Nielsen Estimates Number of U.S. Television Homes to be 114.7 million (New York: Media and Entertainment, 2011). [http://blog.nielsen.com/nielsenwire/media\\_entertainment/nielsen-estimates-number-of-u-s-television-homes-to-be-114-7-million/](http://blog.nielsen.com/nielsenwire/media_entertainment/nielsen-estimates-number-of-u-s-television-homes-to-be-114-7-million/) accessed Mar 16, 2013.

<sup>14</sup> U.S. Census Bureau. Information & Communications: Internet Publishing and Broadcasting and Internet Usage (Washington, D.C: Statistical Abstract of the United States, 2012). <http://www.census.gov/compendia/statab/2012/tables/12s1155.pdf> accessed Mar 18, 2013.

Marketing Charts (2012), citing comScore MobiLens research findings from a national “intelligent online survey” using a representative sample of more than thirty thousand mobile subscribers, reports that over 119 million Americans age thirteen and older own a smartphone, and that they engage in more activities using the device.<sup>15</sup> Compared with 2011 data, downloaded applications using smartphones rose more than ten percent to a total of fifty-four percent. Browser use grew by 8.6 percent, reaching a total of 52.6 percent, and social networking and blog site use grew by 6.7 percent to hit 39 percent.<sup>16</sup>

Additional MobiLens research finds (1) Twitter use up 62.5 percent from May 2010 to May 2011,<sup>17</sup> (2) desktop computer use has fallen nearly ten percent since 2006 while laptop use has nearly doubled in the same period (from thirty percent to fifty-two percent);<sup>18</sup> and (3) more adults own mobile phones than computers.<sup>19</sup> Reporting on a

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<sup>15</sup> Watershed Publishing. Smartphone Penetration Crosses Majority Threshold of US Mobile Market (Theford Center, Vermont: Nov 5, 2012. <http://www.marketingcharts.com/wp/interactive/smartphone-penetration-crosses-majority-threshold-of-mobile-market-24540/> accessed Mar 16, 2013.

<sup>16</sup> Ibid.

<sup>17</sup> Ibid., Twitter Use Jumps from 2010 (June 2, 2011), 16. <http://www.marketingcharts.com/wp/direct/twitter-use-jumps-from-nov-2010-17703/> accessed Mar 16, 2013.

<sup>18</sup> Ibid., Millennials More Likely to Own Portable Gadgets (Feb 7, 2011). <http://www.marketingcharts.com/wp/direct/millennials-more-likely-to-own-portable-gadgets-15979/> accessed Mar 16, 2013.

<sup>19</sup> Ibid., Laptops, Desktops Grow in Opposite Directions (Oct 8, 2010). <http://www.marketingcharts.com/wp/direct/laptops-desktops-grow-in-opposite-directions-14641/> accessed Mar 16, 2013.

Prosper Mobile Insights survey, Marketing Charts reports that more than nine in ten smartphone and tablet users conduct financial activities on their devices.<sup>20</sup>

But in “The Cross Platform Report – Q4 2011,” Nielsen (2012) finds average Americans still spending almost five hours per day watching television: ninety-eight percent of which they do on a traditional TV set. “Americans are not turning off,” it says, “They are shifting to new technologies and devices that make it easier for them to watch the content they want whenever and wherever it is most convenient...As such, the definition of the traditional TV home will continue to evolve.”<sup>21</sup>

### **Mobility matters**

The exact motivations driving the move away from home television sets to smartphones, tablets, and laptops may be unclear. But the ease of mobility in using MICDs and their interactive features that facilitate a full range of mediated communication (interpersonal and mass communication content creation and consumption) doubtlessly contribute to the shift. Mobility permits MICD users to communicate one-to-one, one-to-many, and many-to-one from nearly anywhere in the developed world, using email, texting, and social networking sites, for instance. Few, if any, would doubt that the invention and rapid penetration of MICDs that provide high levels of interactivity play an important role.

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<sup>20</sup> Ibid., *9 in 10 Smartphone and Tablet Users Conduct Financial Activities on Their Devices* (Feb 14, 2013). <http://www.marketingcharts.com/wp/interactive/9-in-10-smartphone-and-tablet-users-conduct-financial-activities-on-their-devices-26998/> accessed Mar 16, 2013.

<sup>21</sup> Nielsen, *The Cross Platform Report – Q4 2011* (May 2, 2012). <http://www.nielsen.com/us/en/reports/2012/the-cross-platform-report-q4-2011.html> accessed Mar 16, 2013.

They permit users to engage with both artificial intelligence systems such as Amazon's "Customers Who Bought This Item Also Bought" feature, and with other human beings. They have become vehicles for both traditional TV content and mediated interpersonal communication. Some argue that MICDs are simply the modern equivalent of the television set, a case that deserves merit. To wit, The Nielsen Company's Jon Gibbs, Vice President of Media Analytics for the company's online division, writes of "NBC and Fox joining forces to create Hulu, if for no other reason than to solidify their participation in the increasingly important and transformative online video market."<sup>22</sup> MICDs can download and display television programs and movies from Hulu and YouTube as well as NBC, CBS, ABC, Fox, and other traditional television producers. MICDs can perform tasks similar to those enabled by STBs, such as gaming. But there are significant differences between MICDs and home television sets that cannot be overlooked.

First is mobility. Unlike a home television set, a smartphone will fit in one's pocket. While larger than smartphones, tablets are about the size of a spiral-bound notebook commonly used by elementary and high school students. Both are commonly found in the possession of their owners, almost wherever they may be: home or away. In contrast, Nielsen Company's traditional definition of a U.S. HH television might lead to TVs being characterized as portable – in that it can be moved from one place to another – but not mobile. With few exceptions, virtually all U.S. household televisions are powered by standard 120 volt alternating current systems via electrical outlets in fixed locations

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<sup>22</sup> Nielsen, *The Shifting Landscape: Integrated Measurement in a Multi-Screen World* (2009), 3. [http://www.nielsen.com/content/dam/corporate/us/en/newswire/uploads/2009/11/Integrated-Measurement-Solutions\\_NielsenWP\\_102209.pdf](http://www.nielsen.com/content/dam/corporate/us/en/newswire/uploads/2009/11/Integrated-Measurement-Solutions_NielsenWP_102209.pdf) accessed Mar 18, 2013.

throughout the home. Exceptions include a handful of battery-powered portable televisions about the size of notebooks or laptops which have recently grown in popularity due in part to their improved image quality and portability. They can commonly be found in automobiles, at campgrounds, sporting events, and dorm rooms, for instance, where mobility and size matter. Yet as handy as they are for these kinds of uses, they will not fit in a common pants pocket like a smartphone, and their numbers are tiny compared with MICDs.

Second is interactivity. While television producers and distributors offer a bevy of services they refer to as interactive, nearly all fall short of the levels of interactivity available via MICDs. As a result, one can discreetly categorize a media device as mobile or not. But comparing the interactivity features of MICDs and televisions makes the categorization of interactive features more complex. Rather than a discreet definition, interactive is better defined along a continuum from very low levels of interactivity to very high. Comcast's Xfinity cable television programming includes a set of "On Demand" features it labels as interactive. These features are available to subscribers willing to pay for premium services. On Demand services include a rich listing of movies from which a subscriber can choose: some for free, others for a fee. The selections are stored on the cable provider's servers and available for immediate access. In addition, both On Demand and live digital programming options give subscribers the ability to watch programs continuously, pause them, rewind them, and to watch them in slow motion and multiple fast-forward speeds.

But compared with the level of interactive features found on MICDs, Comcast's On Demand movie and digital service features would best be described as low on an

interactivity continuum: arguably only slightly higher than that of a viewer changing the channel, an act that similarly gives viewers multiple programming options. That one can watch a stored program may be diminishing in consequence today when satellite and cable providers offer hundreds of channel options. On Demand's most prominent feature remains its ability to feed one-way programming to customers at the times of their choosing and to pause, fast-forward, and rewind it at their commands: remarkably similar to the benefits derived from Video Cassette Recorders (VCRs), a technology that exploded in the U.S. during the 1980s. But no one called it *interactive* then, and no one does now. On Demand services such as those described here make the work of storing and retrieving recorded programs simpler for users than VCRs, but the content results and levels of interactivity are no different.

Conversely, AOL company TechCrunch.com reported that Comcast began offering Skype through its Xfinity service in mid-2012.<sup>23</sup> This interactive internet-based service owned by Microsoft permits users to communicate face-to-face using internet devices: most often a computer. Apple Corporation's "Face Time" software provides similar services. Factory-built Skype-enabled television sets and STBs available for High Definition Televisions (HDTVs) provide viewers the ability to employ television sets' sound and picture technologies for interpersonal communication. This kind of interaction, similar to that of MICDs, would legitimately be described as a higher level on an interactivity continuum: direct, real-time interpersonal communication.

### **Research questions**

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<sup>23</sup> Ingrid Lunden, [Skype Reaches A 45M Concurrent User Peak, And What Looks Like A Stage Of Momentum](http://techcrunch.com/2012/10/14/skype-reaches-a-45m-concurrent-user-peak-and-what-looks-like-a-new-stage-of-momentum/) (New York: AOL Tech, Oct 14, 2012). <http://techcrunch.com/2012/10/14/skype-reaches-a-45m-concurrent-user-peak-and-what-looks-like-a-new-stage-of-momentum/> accessed Mar 16, 2013.



Existing technology enables the home television set to participate in the current interactive media revolution. But overwhelmingly, its owners choose not to employ the home television set or its component parts – the screen in particular – to the task. The purposes of this paper are to (1) examine the role(s) U.S. home television sets are positioned to play in today's era of revolutionary change in the kinds of devices we use to create, consume, and distribute media content; (2) explore for indicators of change in the uses and gratifications home television users derive from their home TV sets; and (3) build and generalize upon – or challenge the existing body of – common theoretical underpinnings of historical Uses and Gratifications (U&G) research findings and conclusions as they relate to American households' uses of interactive television (iTV).

*Q.1:* Why, amid a technology revolution that continues to provide new technologies that permit high levels of interactivity using standard home television sets, are home televisions largely absent from mediation of higher-level interactive communication?

*Q.2:* How well do common findings in historical U&G research help us understand people's motivations for and gratifications derived from television use today?

*Q.3:* Are common findings in historical U&G research sufficient to generalize upon or to challenge existing theoretical bases in the field regarding embrace of iTV? If so, how?

## PART I. HISTORICAL STUDY OF TELEVISION IN THE U.S.

### **Spinning discs, cathode-ray tubes, and the characters behind them**

This research project begins with a historical case study of television beginning with the earliest inventors and inventions through today. The insights gained from television's history help familiarize the reader with the contexts in which television's multiple competing technologies were conceived, invented, and tested in what we now can view as TV's "competing paradigm" or "pre-paradigm" period, as Kuhn<sup>24</sup> describes. This case study includes the events and players that surrounded the establishment of standards that created a common platform for its explosive growth following WWII – a paradigmatic period<sup>25</sup> – through today's era that signals another potential paradigm shift back toward a more chaotic environment awash in new technologies and new devices that threaten the to punish one-way television content creators and distributors: cable and satellite providers in particular.

Magoun<sup>26</sup> provides a timeline of television's development, beginning in 1873 and ending in 2007. One of the remarkable findings from the age of television's infancy is an 1878 depiction of what we would now call iTV at its highest-functioning level. Working

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<sup>24</sup> Kuhn, Thomas S., The Structure of Scientific Revolutions: Second Edition, Enlarged (Chicago: University of Chicago Press, 1970), 94, 96.

<sup>25</sup> Ibid., 10, 12, 15

<sup>26</sup> Magoun, Alexander B., Television: The Life Story of a Technology (Westport, Connecticut: Greenwood Press, 2007), xix.

for *Punch's Almanac for 1879*, British illustrator George du Maurier imagined how a family might use what Thomas Edison envisioned with his idea for a “telephonoscope:” seeing and speaking with their children on the opposite end of the world.<sup>27</sup> The illustration resides in the David Sarnoff Library. It also appears in Magoun’s work, where he describes the cartoon as depicting a large screen, “interactive, high-definition, flat-panel display.”<sup>28</sup>

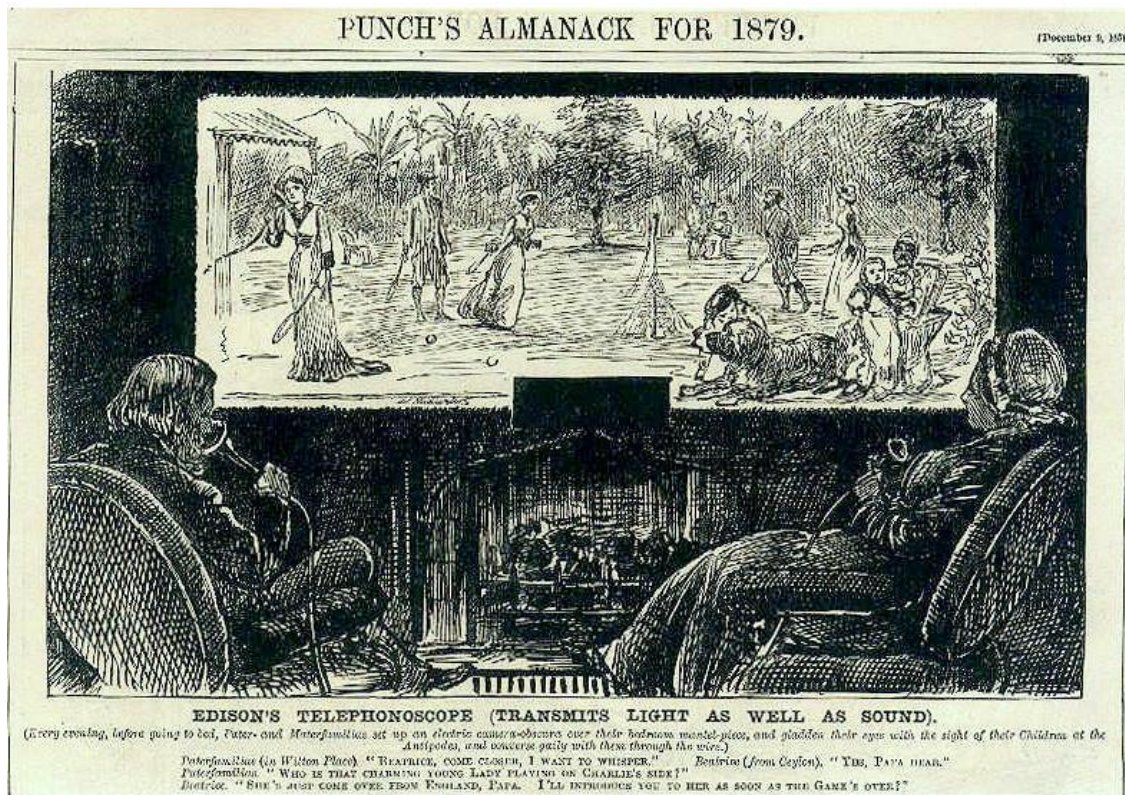


Figure 1

George du Maurier’s illustration of Thomas Edison’s telephonoscope published in 1878 for the 1879 *Punch’s Almanac* in London

<sup>27</sup> *Ibid.*, 2

<sup>28</sup> *Ibid.*, 3

Caption:

EDISON'S TELEPHONOSCOPE (TRANSMITS LIGHT AS WELL AS SOUND)

*(Every evening, before going to bed, Pater- and Materfamilias set up an electric camera-obscura over their bedroom mantel-piece and gladden their eyes with the sight of their Children at the Antipodes and converse gaily through the wire.)*

*Paterfamilias (in Wilton Place)* "BEATRICE, COME CLOSER, I WANT TO WHISPER."

*Beatrice (from Ceylon)* "YES, PAPA DEAR."

*Paterfamilias* "WHO IS THAT CHARMING YOUNG LADY PLAYING ON CHARLIE'S SIDE?"

*Beatrice* "SHE'S JUST COME OVER FROM ENGLAND, PAPA. I'LL INTRODUCE YOU TO HER AS SOON AS THE GAME'S OVER?"

NOTE: This work, published in London, England in 1878 is in the public domain because it is an artistic work other than a photograph which was made available to the public more than 70 years ago (before 1 January 1943).

In the late 1800s, a number of scientists and inventors were actively pursuing technically and commercially viable television systems. Portuguese professor Adriano de Paiva wrote an article in 1878 about the feasibility of constructing an "electric telescope"<sup>29</sup> and published a booklet on the topic in 1880. Also in 1878, Alexander Graham Bell proposed a "photophone."<sup>30</sup> French lawyer Constantin Senlecq described a "telectroscope"<sup>31</sup> in 1879. The same year, Ireland's Denis Redmond described his experiments with an "electric telescope"<sup>32</sup> and Italy's Carlo Perosino suggested a synchronized platinum point made of selenium could scan and reproduce an image on a

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<sup>29</sup> Ibid., 6

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

<sup>32</sup> Ibid.

receiving screen.<sup>33</sup> In 1880, W.E. Ayrton and John Perry wrote in *Nature* about a proposed television system also using selenium cells.<sup>34</sup>

Later that year, George Carey of Boston described a system using carbon or platinum filaments in a vacuum tube, claiming his invention was “ready to go into the stores,”<sup>35</sup> and France’s Maurice LeBlanc<sup>36</sup> first proposed in *La Lumiere Electrique* scanning images onto a single photocell, synchronizing images with induced current.<sup>37</sup> In 1881, inventors Shelford and Bidwell<sup>38</sup> presenting at Great Britain’s Physical Society reproduced simple black and white designs “with well-defined marks” of a butterfly’s wings and in 1882, England’s William Lucas<sup>39</sup> followed with a similar scanning approach using two crystalline calcium carbonate Nicol prisms.

Abramson chronicles “prehistory” inventions that reproduced series of images that simulated motion to the human eye. In 1824/25, Peter Roget delivered a paper on the phenomenon of “persistence of vision” using a “magic disc:” the Fantoscope or Phenakistiscope.<sup>40</sup> Simon Von Ritter invented a “Stroboscope” in 1832.<sup>41</sup> In 1849,

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<sup>33</sup> Ibid.

<sup>34</sup> Ibid.

<sup>35</sup> Ibid.

<sup>36</sup> Ibid., 6-7

<sup>37</sup> Ibid., 7

<sup>38</sup> Ibid.

<sup>39</sup> Ibid.

<sup>40</sup> Abramson, Albert, The History of Television, 1880 to 1941 (Jefferson, North Carolina: McFarland & Company Inc., 1987), 5.

<sup>41</sup> Ibid.

Plateau suggested technical improvements to the Phenakistiscope.<sup>42</sup> In 1853, Baron Franz von Uchatius combined the Phenakistiscope with the magic lantern. Abramson refers to von Uchatius as “the first man to achieve moving images on a screen visible to the audience.”<sup>43</sup> Charles Emile Reynaud developed his version of a moving picture, the Praxinoscope,<sup>44</sup> in 1877. Eadweard Muybridge and John D. Isaacs<sup>45</sup> used a battery of cameras to take series of pictures of moving objects, and became famous in the field for first identifying that all four horse hooves leave the ground in a gallop.

In the late 1800s, scientists, students, engineers, and amateurs began imagining approaches to creating television. It was a case of “simultaneous conception,”<sup>46</sup> followed by inventors who applied known scientific discoveries and created new ones in pursuit of the technology. Magoun called giving credit for inventing the first working television a “tricky question,” saying that during the first quarter of the twentieth century, “a variety of inventors did just that.”<sup>47</sup>

While few of the technologies under development at the time survive today, they created multiple scientific platforms upon which others continued to explore and improve. Over the ensuing years, they sought higher levels of clarity and reliability of the television receiver, display, and synchronized transmitter system capable of amplifying

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<sup>42</sup> Ibid.

<sup>43</sup> Ibid.

<sup>44</sup> Ibid.

<sup>45</sup> Ibid.

<sup>46</sup> Magoun, xiv

<sup>47</sup> Ibid.

the signal sufficiently to reach an audience large enough to make it commercially viable. It is clear that many men of vision, science, and aspiration – and they were all men – aggressively pursued the promise of television in the pre-paradigm phase of its technological development. It is equally clear that no one actually invented television: many people separated by many miles did. Magoun points to four key people whose contributions most shaped the technology: Vladimir Zworykin, Philo Farnsworth, Charles Jenkins, and John Logie Baird.<sup>48</sup>

At the 1900 Paris Exhibition, Constantin Perski first coined the word “television.” In use at the time were “radiovision,” “photophone,” “televisor,” “electric telescope,” “telephonoscope,” “telectroscope,” “praxinoscope,” “Phenakistiscope,” and “stroboscope.” On July 18, 1908, the first American patent for a television system was filed by Gilbert Sellers. Less than six months hence, A.C. Anderson and L.S. Anderson applied for Britain’s first patent of “television.”<sup>49</sup>

Throughout the ensuing years, inventors and scientists from America, Denmark, England, France, Germany, Norway, Russia, and Sweden continued their pursuits in the fields of chemistry, physics, electricity, engineering, and electronics to develop new and better television technologies. Among the most prominent inventors of the era was Boris Rosing whose work with the cathode ray tube produced a quantum leap<sup>50</sup> in television technology that became the accepted standard for television displays for a century.

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<sup>48</sup> Ibid., 19-37

<sup>49</sup> Abramson (1987), 29

<sup>50</sup> Fisher, David E. and Marshall Jon Fisher, Tube: The Invention of Television (Washington D.C: Counterpoint, 1996), 120.

In 1908, consulting engineer A.A. Campbell Swinton responded to an article in *Nature* about the future of television, writing that the systems being proposed were not possible but that the problem could be solved using properly positioned “kathode rays.”<sup>51</sup> Speaking to the Radio Society of Great Britain in 1920, he posited TV’s biggest challenge was whether it was worth anyone’s time to pursue it. The hard work and time it would take to complete led him to conclude it would not be financially viable.<sup>52</sup>

Others disagreed. In 1920, David Sarnoff, Commercial Manager of then start-up business Radio Corporation of America (RCA), lectured at the University of Missouri telling the audience that “soon the entire world would be able to watch the best orators in the comfort of their own living rooms and that they would not only hear the words, but they would see ‘every play of emotion on the preacher’s face as he exhorts the congregation to the path of religion.’”<sup>53</sup>

In 1926, nineteen year-old “boy genius”<sup>54</sup> Philo Farnsworth produced the first electronic television broadcast, using a loop from a film segment bootlegged from the Mary Pickford-Douglas Fairbanks silent movie *Taming of the Shrew* (Everson, 1974;<sup>55</sup> Ritchie, 1994;<sup>56</sup> Magoun, 2007;<sup>57</sup> for instance). “Day by day,”<sup>58</sup> he worked for months on

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<sup>51</sup> Ibid., 38

<sup>52</sup> Ibid., 38-39

<sup>53</sup> Ibid., 39

<sup>54</sup> Ritchie, 13

<sup>55</sup> Everson, George, The Story of Television: The Life Of Philo T. Farnsworth (New York: Arno Press, 1974), 100.

<sup>56</sup> Ritchie, 12

<sup>57</sup> Magoun, 27



improving the image displayed on the glass tube he had commissioned from a local glass blower. His “dissector tube” was a forerunner of what we now know as a cathode ray tube, or “CRT,” a technology rapidly disappearing in favor of high-definition flat panel displays – but not uncommon even today in homes, offices, airports, restaurants, waiting rooms, banks, hospitals, and other places where television sets and computer displays are found.

With the help of his new wife Elma, Farnsworth, Leslie Gorrell, and George Everson – with whom he had shared his idea while working with them raising funds for the Community Chest in Salt Lake City – eventually arranged for a meeting in 1926 with Richard Lyon, a respected lecturer on patent law at Stanford University and an MIT graduate. Lyon became fascinated with the invention. Everson abruptly ended the technical briefing with Lyon that followed to ask three questions. “First, is this thing scientifically sound?” Dr. Smith from Cal Tech answered “almost bemusedly, ‘Yes.’” “Second, is it original?” Dr. Smith, well-acquainted with literature on electronics said he knew of no such research on anything similar. Everson’s final question was whether it was feasible: whether it could become a practical product. Lyon posited it would have great difficulty, but could see nothing insurmountable.<sup>59</sup>

Lyon was right about the difficulty. Repeated attempts over the succeeding months to raise the quantity of risk capital Everson envisioned necessary for the endeavor failed. Such seemed the case again when his unscheduled call to meet Jesse McCargar, vice

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<sup>58</sup> Ritchie, 12

<sup>59</sup> Everson., 55

president of the Crocker First National Bank, led him instead to the bank's Mr. Fagan, who to Everson's surprise, arranged for him to meet with Roy Bishop, capitalist and engineer, in a few days.<sup>60</sup> Bishop first expressed regret that he couldn't see a role for himself. While Everson and Farnsworth were exiting the room amid a backdrop of whispered conversation between Bishop and his engineer, Bishop stopped them and referred them to Harlan Honn, an engineer at Crocker Research Laboratories, saying, "If you can convince him your proposition is sound...I think we will find ways of backing you."<sup>61</sup> Before the day ended, Honn had agreed the system would work. Everson informed Bishop of Honn's opinion by phone and produced a formal report. Upon McCargar's return, the banking group agreed to invest \$25,000 in Farnsworth's invention if Farnsworth and company could reach agreement on the terms.

Upon McCargar's quizzing of Farnsworth at the meeting, the inventor again convinced the skeptical that many had tried similar experiments, but all had relied on mechanical devices to break down and reassemble the images. He schooled them on Russian-German scientist Paul Gottlieb Nipkow's 1884 spinning disc approach and Weiller's 1889 invention with convex mirrors on a spinning wheel. He reported that this was the technology Dr. Ives at Bell Labs was pursuing. So was Britain's Baird. Farnsworth's was the only technology to capture, break down, transmit, receive, and reassemble a moving picture "by manipulating the speed of electrons."<sup>62</sup>

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<sup>60</sup> Ibid., 64-65

<sup>61</sup> Ibid., 66-67

<sup>62</sup> Ibid., 68-69

As noted above, in spite of his revolutionary invention, Farnsworth was not the first to produce a television broadcast. Everson reports that Farnsworth said there were four experiments in television at the time, being led by Dr. Herbert Ives at Bell Labs, Dr. Ernst Alexanderson at General Electric Laboratories, Scotland's Baird, and Jenkins in Baltimore.<sup>63</sup> What was different about Farnsworth's invention was that it was electronic.

The first "television system" was a mechanical device developed by Jenkins<sup>64</sup> using Nipkow's 1884 technology. It was capable of broadcasting from New York to Los Angeles, but only the audio could be heard on the west coast via broadcast on a shortwave radio band. The mechanical TV's picture scanned 48 lines (present HD standard is up to 1080) revealing a "very fuzzy"<sup>65</sup> image in the best of locations. Nipkow Disc technology was the dominant television technology paradigm of its time. It produced the first generation of television sets and the first broadcast images: live moving pictures with synchronized sound in 1925 originating from a Washington D.C. laboratory. In April of 1927, Jenkins showed off his "Radio Vision" technology, broadcasting a speech from U.S. Secretary of Commerce Herbert Hoover in Washington D.C. before a "televisor" using Nipkow's mechanical technology.

Nipkow's system worked similarly to that of a film projector. It displayed what appears to the human eye to be a moving picture by capturing still frames and displaying them on the screen at a rate of about ten per second. It required a spinning disc with holes cut into it in a spiral pattern, synchronized with the back-and-forth movement of a still

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<sup>63</sup> Ibid., 41

<sup>64</sup> Ritchie, 18

<sup>65</sup> Ibid., 17

picture projector bulb. In spite of its shortcomings, Nipkow's television technology generated a lot of publicity. Hoover's speech included recognition of this special event: "It is a matter of pride to have a part in this historic occasion. We have long been familiar with the electrical transmission of sound. Today, we have, in a sense, the transmission of sight, for the first time in the world's history."<sup>66</sup> But in spite of the potential enormous commercial success of Nipkow Disc technology, Jenkins was forever disappointed. He "had helped the birth of motions pictures"<sup>67</sup> with far superior imaging results.

In 1931, CBS's William Paley requested Federal Radio Commission, now Federal Communications Commission (FCC), approval of experimental broadcasts using Nipkow Disc technology. Experimental broadcasts featured a still photograph, call letters, a clock, and the promise of boxing, football games, dancing, art exhibitions, and news.<sup>68</sup> New York City Mayor Jimmy Walker formally opened CBS's station, broadcasting a variety of programming including comic Harry Burbig's "Little Red Riding Hood," George Gershwin playing "Liza," and Kate Smith singing "When the Moon Comes Over the Mountain." According to Ritchie, announcer Ted Husing also suggested "that someday, TV would be 'two-way', with viewers able to 'talk back.'"<sup>69</sup>

In Britain, the Baird Company was busy taking television out of the laboratory and into practice using a motor rigged to the inside of a tea chest, a bicycle light, hat boxes, and a cardboard version of the Nipkow Disc. According to Ritchie, Baird had been using

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<sup>66</sup> Ibid., 19

<sup>67</sup> Ibid., 18

<sup>68</sup> Ibid., 23

<sup>69</sup> Ibid.

the Nipkow Disc system in British broadcasting for “some time.”<sup>70</sup> His town council’s vote to erect a plaque declaring “Television: first demonstrated by John Logie Baird from experiments started here in 1924,” captured the interest of the *Times* and dozens of other newspapers. Baird’s first TV star was ventriloquist William Taynton, accompanied by his dummy “Bill.”<sup>71</sup> A reluctant Taynton, whom Baird had “bribed” to take the job,<sup>72</sup> was quickly replaced by Baird himself who became the second face on a television screen. The Baird Company’s first broadcast originated from his studio on September 30, 1927 when Sir William Graham, M.P., read a letter welcoming television’s introduction to Britain.<sup>73</sup>

Baird’s life was that of a serial entrepreneur. Prior to his interest in commercializing television, he had failed in the marketing of a friend’s cure for hemorrhoids, in the importation of marmalade, and the introduction of a cheap soap product. As an engineering assistant working at the City of Glasgow’s power plant, he “‘blew up’ the city’s power supply in a disastrous attempt to utilize the electrical mains to create diamonds in a pot of cement.”<sup>74</sup> But he had some successes as well, including the “Baird Undersock,” based on his own life’s discomfort from socks becoming sweat-soaked and chilling one’s feet in Britain’s cold winters. He hired “a platoon of women,” hanging boards around their necks on which were printed, “THE BAIRD UNDERSOCK for the

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<sup>70</sup> Ibid.

<sup>71</sup> Ibid., 24

<sup>72</sup> Ibid.

<sup>73</sup> Ibid., 26

<sup>74</sup> Fisher and Fisher, 24

Soldier's Foot."<sup>75</sup> The women's signage attracted great publicity, and within a year he had earned ten times the salary he made at the electric plant.

Seeking to escape the unpleasant winters of the British Isles, he moved to Trinidad and discovered new discomforts: heat and humidity, mosquitoes, dysentery, and fever. There he failed in another "disastrous attempt" to start-up a jam business using local fruits.<sup>76</sup> He returned to London where he designed a rust-free shaving razor made of glass and shoes that mimicked the technology of the new pneumatic tire. Both failed; the latter from a blowout of one of the shoes he was demonstrating at the time.<sup>77</sup>

Upon settling in London, he also returned to his first inventive interest: electricity, an area in which had experienced both failure and success. His successes included assembling at age "thirteen or fourteen"<sup>78</sup> a stack of lead plates, some used oil, sulfuric acid, and old glass jars to create a battery that would build and store an electric charge from power generated by a gas-powered engine in quantity sufficient to light his father's house with electric lamps.<sup>79</sup> At about the same, time he created a small telephone exchange, taken from plans in the *Boys Book of Stories and Pastimes*.<sup>80</sup> Although it ended badly when a low-hanging wire knocked a horse-driven cabby off his high perch,

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<sup>75</sup> Ibid., 25

<sup>76</sup> Ibid., 26

<sup>77</sup> Ibid., 27-28

<sup>78</sup> Ibid., 28

<sup>79</sup> Ibid.

<sup>80</sup> Ibid.

Baird's next pursuit proved to be his most fruitful. According to Fisher and Fisher, "He had to invent something, he thought. Well, why not television?"<sup>81</sup>

Calling on an old schoolboy friend, Baird told him "you will be pleased to hear that I have invented a means of seeing by wireless."<sup>82</sup> His renewed interest in electric technology resulted in his emergence as one of television's legends. The British press lauded the technology after a successful demonstration of his device. In 1929, BBC was "sufficiently impressed"<sup>83</sup> that the network agreed to test Baird's scanning-disc system in its broadcasts. Armed with the success of his televisor, his currency in media invention was reinforced just months later upon his introduction of a video disc, made using standard phonograph record technology. His remarkable successes in new media of the day served to keep his interest focused on further developing and improving television technology throughout the rest of his life, undistracted by other entrepreneurial endeavors.

Throughout, Farnsworth stubbornly claimed Ives, Jenkins, Baird, and Alexanderson, were all "barking up the wrong tree."<sup>84</sup> Working against him were his apparent lack of scientific bona fides, criticism by industry press, difficulties he faced in taming electrons to do the job he coaxed them to accomplish, and a lack of cash to fund the development of his electronic television system. All the great minds of television were continuing to pursue Nipkow disc technology. But Farnsworth and his "simple but revolutionary

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<sup>81</sup> Ibid.

<sup>82</sup> Ibid.

<sup>83</sup> Ritchie, 25

<sup>84</sup> Everson, 41

device,”<sup>85</sup> the dissector tube, which he developed at age fifteen, would eventually prevail. Bell Labs’ Dr. Herbert Ives called it “the most daring invention” of which he had knowledge.”<sup>86</sup> Farnsworth’s pursuit of an electronic television system became “the consuming interest of the boy’s life.”<sup>87</sup> But it would not prevail without failures, and not without fights.

Farnsworth’s first application for patent was filed January 27, 1927. It took several years for the patent office to rule as Farnsworth and his financial backers defended it vigorously in the face of an RCA challenge claiming the dissector tube should be subject to RCA’s patent domination and that his ideas were not original.<sup>88</sup> RCA’s Sarnoff later claimed he liked and respected Farnsworth, but he would not take the young Mormon’s invention lying down. While accelerating RCA’s research on television, he also “instructed his lawyers to do whatever was necessary to stop Farnsworth.”<sup>89</sup> The Farnsworth Company spent \$30,000 on the case just as the U.S. was entering the Great Depression. On August 26, 1930, the federal agency issued patent No. 1,773,980 to the Farnsworth Company. After losing his company’s case, Sarnoff guaranteed Farnsworth healthy royalties for his patent in 1930. The RCA attorney who signed the contract with Farnsworth was said to have had tears in his eyes over agreeing to guarantee the young

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<sup>85</sup> Everson, 22

<sup>86</sup> Ibid.

<sup>87</sup> Ibid., 27

<sup>88</sup> Ritchie, 13

<sup>89</sup> Edgerton, 49



inventor's demands.<sup>90</sup> With his newly-earned currency, Farnsworth shared his technology with Westinghouse and RCA, and entered into a licensing agreement with Philco Laboratories in Philadelphia, where he set up production.

In 1931, Vladimir Zworykin, RCA's chief scientific officer working on television, visited Farnsworth's laboratories. Shortly thereafter, Sarnoff visited and told Everson that Zworykin's receiver technology would make it possible for his company to produce a television system using similar technology it had developed in its own laboratories, avoiding the need to purchase Farnsworth's patents and making it clear that the better-capitalized Radio Corporation of America would compete fiercely with Farnsworth in television technology.<sup>91</sup> Not long afterward, RCA announced Zworykin's iconoscope, "a most ingenious tube,"<sup>92</sup> different in some ways from Farnsworth's dissector tube. Zworykin's tube stored electrons and released them onto the screen. Farnsworth's system released electrons in a constant flow. The net effect was that Zworykin's technology was superior in studio settings, while Farnsworth's was better in outdoor environments.<sup>93</sup> This ignited a fierce race between the two in the next phase of television's development. Aiding Farnsworth in his quest was that from his laboratories at Philco, his engineers could often pick up images from the RCA's Camden, New Jersey labs. Hence, they learned a great deal about RCA's and Zworykin's technologies. Some were

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<sup>90</sup> Ritchie, 13

<sup>91</sup> Everson, 199

<sup>92</sup> Ibid.

<sup>93</sup> Ibid., 200

“disquieting.”<sup>94</sup> Everson writes that Farnsworth enjoyed the rivalry and that his ideas about what became the orthicon and his image amplifier were driven by his determination to better Zworykin’s technologies.<sup>95</sup>

During the period 1935 through 1937, the Radio Manufacturers Association (RMA) was becoming more keenly aware of the demand for a common set of television standards so that it might realize its commercial potential. Responding to a suggestion from the FCC, RMA appointed a committee to recommend standards. The committee would be led by Albert F. Murray, chief of Philco’s television development program. It was comprised mostly of engineers and included representation from Farnsworth, Philco, General Electric, RCA, and Hazeltine Corporation. The guiding principle in setting standards was to produce the highest quality picture without regard to who owned the technology: a process Everson says “was scrupulously adhered to.”<sup>96</sup>

One of the outcomes of the quest for the “simplest, most dependable, and best device for a specific function” according to Everson, was that “The committee found no place in their discussions for consideration of equipment involving mechanical moving parts,”<sup>97</sup> meaning Farnsworth’s electronic television would become the standard path forward in television’s development and production in the U.S. Other key standards included transmitting images at a rate of 30 per second and using 441 lines of resolution,

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<sup>94</sup> Ibid., 201

<sup>95</sup> Ibid.

<sup>96</sup> Ibid., 196

<sup>97</sup> Ibid., 198

later increased to 525 lines, which became the standard for the duration of analog television.

Farnsworth's respect for Zworykin was reinforced when he voted for adoption of Zworykin's interlaced scanning method over his own progressive scanning, effectively granting RCA and Zworykin "a patent controlling an essential element of television."<sup>98</sup> The language of interlaced and progressive scanning survives today in television's most modern technologies: 720p (progressive scanning) and 1080i (interlaced scanning), for instance. But Farnsworth remained confident about the superiority of his own scanning technology independent of whether it was applied in interlaced or progressive methods. He was also confident in his company's black synchronizing pulse technology and its electric saw-tooth wave form. Farnsworth and his expanded scientific team conducted numerous experiments in lighting and sets that proved to their satisfaction that their cameras were practical in studio settings. Farnsworth publicly praised Zworykin's work; privately, the competition stimulated his inventive spirit, according to Everson. He believed Farnsworth's ideas for what became the amplifier dissector tube and the orthicon were inspired by his drive to outdo Zworykin.

But Zworykin was not the only RCA threat to Farnsworth's system. Among the most colorful figures in television's early history was tireless self-promoter Sarnoff, who became RCA's commercial manager in 1919 at the age of 30 and CEO of RCA and its subsidiary NBC at the age of 39. Media historian Louise Benjamin refers to him as "one

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<sup>98</sup> Ibid., 201

of the legendary geniuses of American Broadcasting.” She also reports that he “loved his celebrity.”<sup>99</sup>

Sarnoff traveled to London to witness the British Broadcasting Corporation’s (BBC’s) regularly-scheduled telecasts that had begun ten months prior to his trip. In reply to questions about whether England was ahead of the U.S. in television, he answered that “RCA was essentially at a point of technological parity with its British counterpart” due to cross-licensing agreements permitting both RCA and BBC to share the same patents. Consistent with his role as corporate commercial manager, he also used the occasion to promote TV’s development as a decidedly private sector endeavor, saying “I firmly believe in the American system of private enterprise, rather than government subsidy.”<sup>100</sup>

He was prepared to introduce RCA’s TV at the 1939 World’s Fair, “The World of Tomorrow,” an event conceived by top New York banks, businessmen, and politicians. Opening Day would be highlighted by U.S. President Theodore Roosevelt. But it was Sarnoff who moved to center stage: in this case, behind a lectern and in front of a television camera. Having prepared for years to introduce the next evolution of television at the fair, in the waning days before the Fair’s opening, he chose instead to heed the urgings of public relations pioneer Edward Bernays and preempted the planned ceremonial proceedings by demonstrating RCA’s new TV a week and a half before the Fair’s official opening. Fisher and Fisher write: “It would not be FDR’s visage, but his

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<sup>99</sup> Louise M. Benjamin, “In search of the Sarnoff ‘Radio Music Box’ memo.” Journal Of Broadcasting & Electronic Media 37, no. 3 (Summer 1993): 325. *Academic Search Premier*, EBSCOhost (accessed March 20, 2013).

<sup>100</sup> Edgerton, 5

own...that would survive the decades as the defining image of the beginning of regular television broadcasting in America.”<sup>101</sup>

Two and a half years later, the great race between Farnsworth and RCA/Zworykin was abruptly halted when WWII came to the Americas by way of a Japanese air force attack on Pearl Harbor.

### **Television’s role in the war effort**

On April 1, 1941, the Federal government issued an order to the broadcast industry to discontinue production commercial radio sets, indefinitely delaying the commercial introduction of television.<sup>102</sup> Sarnoff telegraphed President Franklin Roosevelt, “All of our facilities and personnel are ready at your instant service. We await your commands.”<sup>103</sup> He also stated, “The potentialities of television-directed weapons seem to be of the greatest importance,” claiming RCA was the best producer and “the only presently qualified supplier and the only one able to solve the remaining problems.” Abramson calls Sarnoff’s claims “correct.”<sup>104</sup>

The firm’s engineers and scientists indeed played an important role in development of war technologies: television, sonar, and radar among them. As early as 1935, RCA was spearheading work on U.S. guided missile systems in collaboration with the U.S. War Department’s Office of Scientific Research and Development (OSRD). In 1934, Sarnoff

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<sup>101</sup> Fisher and Fisher, 10-11

<sup>102</sup> Everson, 254

<sup>103</sup> Abramson, Albert, The History of Television: 1942 to 2000 (Jefferson, North Carolina: McFarland & Company, 2003), 3.

<sup>104</sup> Ibid.

received a secret proposal from Zworykin for a “flying torpedo with an electric eye”<sup>105</sup> that impressed Sarnoff so much he immediately arranged a meeting with the War Department and the U.S. Navy in Washington D.C. From the meetings came a government pledge of financial and technical support for the idea. In 1937, RCA engineers successfully demonstrated an airborne reconnaissance system employing television technology to track missiles’ paths to their destinations. The government granted approval for advanced development of the system in 1940, and flight-tested it in 1940 and 1941.<sup>106</sup> RCA and its NBC subsidiary shared some of the demonstrations with the U.S. public including an American Airlines flight that circled the Empire State Building, the Statue of Liberty, and the World’s Fair Grounds. Pictures from the airborne cameras were reportedly so clear that the demonstration’s creators identified the technology as suitable for bombing operations, reconnaissance flights, and map-making. *The New York Times* reported that army and navy officials watched the demonstration “with keen interest.”<sup>107</sup> Zworykin became a member of the Ordnance Advisory Committee on Guided Missiles and three other important subcommittees of the National Defense Research Committee (NDRC). In November of 1941, three RCA television-guided missile tests were deemed successful.

Three television systems were developed for the war effort, all using different broadcast frequencies. The BLOCK system equipment employed the iconoscope pioneered by Zworykin, placing cameras on the noses of the planes that permitted the

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<sup>105</sup> Ibid.

<sup>106</sup> Ibid., 3-4

<sup>107</sup> Ibid., 4

pilots to fire ordnances and follow their paths on a television receiver mounted in the cockpit. The RING system used higher-resolution television systems for reconnaissance missions. The MIMO (miniature image orthicon) system was similar to BLOCK but used a newer, more compact and lighter-weight display still in development at the time.<sup>108</sup> In 1967, then-General David Sarnoff recounted, “By the summer of ’41, I was convinced we could not avoid war and I knew RCA would be in the thick of it. Our technology would be indispensable for military communications. It was just too late in the game for television.”<sup>109</sup>

During the same period, it was reported that Germany was continuing to broadcast television programming. Some claimed a transmitter at Witzelben operated six hours daily until destroyed by Allied bombs in 1943, telecasting entertainment and programs for troops in the hospital.<sup>110</sup> Many doubted the accuracy of the reports, noting that an operating television transmitter would serve as a beacon for Allied bombers. No one disputes, however, that Nazi Germany was well into the development and deployment of television technology for peaceful and forceful purposes. Germany’s reported war uses included monitoring missile launches via closed-circuit TV at Peenemünde, an “enormous secret underground factory” near the Baltic Sea.<sup>111</sup> Walter Bruch, a German scientist located at the facility reported that rocket launches were monitored using two television cameras. He also found time also to continue developing television

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<sup>108</sup> Ibid., 4-5

<sup>109</sup> Ibid., 68

<sup>110</sup> Ibid., 6

<sup>111</sup> Ibid., 5

technologies. The Germans also began the “Tonne” project, to develop and test a “flying bomb guided by a television camera” using both a Farnsworth image dissector and a perikonoscope.<sup>112</sup> They began early work on a 1,029-line television system but discontinued it because it had no direct connection to military applications.<sup>113</sup> But they were using television for non-wartime uses as well, including the intention to create a European television network that would include Germany, Italy, and France.<sup>114</sup>

The War Department’s aggressive support for development of TV-guided weapons demanded continued advancement of television technology to receive sharper pictures and clearer signals necessary to achieve military objectives.<sup>115</sup> The military’s first-generation orthicon tubes developed in 1939 produced images “ten to twenty times” more sensitive than Farnsworth’s image dissector or Zworykin’s iconoscope. By 1944, “it was a hundred times sharper and clearer.” The same orthicon tube technology was used in commercial television production from the mid-1940s through the late 1960s.

By late 1943, three television systems developed by three separate manufacturers proposed three differing technologies, each of which had certain advantages. The manufacturers: Farnsworth, using his image dissector camera; Hazeltine, employing RCA technologies; and Remington-Rand with a new product named the Vericon. But the television system chosen by the military was based on a 1940 patent application filed by Dr. Albert Rose that was withheld until the war ended. Dr. Rose worked with Dr. Paul K.

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<sup>112</sup> Ibid., 6

<sup>113</sup> Ibid., 11

<sup>114</sup> Ibid., 6

<sup>115</sup> Ibid., 71



Weimer and Dr. Harold B. Law in RCA's Laboratories Division on a top-secret project to use Rose's newly-improved orthicon camera tube for military purposes. Because of its 100-fold increase in clarity, it was deemed a threat to national security during a time of war.<sup>116</sup>

The Manhattan project also found television technology useful. Scientists working on the atomic bomb were able to handle and monitor radioactive materials at a distance, using television cameras as their own eyes. In 1945, at the Hanford England ship-building complex, construction of the Queen Mary "canyon" – the solid hull of the nuclear-powered boat some 800 feet long, 65 feet wide, and 80 feet high – was aided by operating an overhead crane from a distance using television cameras so operators could remain at a safe distance from the hazardous material.<sup>117</sup>

On December 12, 1944, Zworykin and Sarnoff were recognized by the Television Broadcasters Association for their service to the industry. Sarnoff, the guest of honor for the evening, received the honorary title, "The Father of American Television" and was awarded a medal "For his vision of television as a social force, and the steadfastness of his leadership in the face of natural and human obstacles in bringing television to its present state of perfection."<sup>118</sup> Zworykin received the association's first award in engineering for his work on the iconoscope and television signal-receiving equipment. Expanding on his work in 1934, Zworykin would develop systems that could change the course of a missile, direct it to a specific target, and track the exact location of its impact.

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<sup>116</sup> Ibid., 7-8

<sup>117</sup> Ibid., 10

<sup>118</sup> Ibid., 12

Using these television-enabled technologies, U.S. Armed Forces could direct explosives to hit moving enemy targets from undetected aircraft by remote control.

The Farnsworth Company also moved into production of electronic equipment to support the war effort. First as a subcontractor, Farnsworth soon began producing as a direct contractor running his company's facilities at full capacity. Because Farnsworth's specialty was research and development, the firm produced products manufactured under strict secrecy. Ignoring doctors' orders to get more rest, he grew weaker eventually entered a hospital in Portland, Maine. When he returned home, Farnsworth was confined to a wheelchair. At the same time, the company was receiving top awards for excellence in production from the War Department.

In search of the "ideal choice,"<sup>119</sup> the War Department's top brass turned to David Sarnoff to organize and coordinate "the labyrinthine wireless circuits" General Eisenhower demanded for both military and press purposes. Sarnoff, a Russian Jewish immigrant, was "appalled" by the Nazi's anti-Semitism. For his service in this theater, he was awarded a Brigadier General's star on December 7, 1944 and thereafter "preferred to be addressed as 'General Sarnoff.'"<sup>120</sup> The war effort also produced unanticipated profits for electronic companies that supplied the U.S. military. AT&T, DuMont, GE, Philco, RCA, Westinghouse, and Zenith all reported significant profit growth. RCA's revenues

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<sup>119</sup> Ibid., 73

<sup>120</sup> Ibid.

tripled.<sup>121</sup> The smaller Farnsworth Television company struggled and was later absorbed by International Telephone and Telegraph in 1949.<sup>122</sup>

By the time the war had ended, RCA had supplied more than four thousand cameras and associated television equipment to the U.S. armed forces, an undertaking that “produced results that were to change the face of warfare forever.”<sup>123</sup>

### **Television’s post-war explosion into the American household**

What would follow a prophet could not tell. In 1945, the FCC issued decisions concerning technical standards for commercial television and airwave frequency allocations. The industry was poised with a common set of technological standards, a hundred-fold improvement in television picture technology, lots of cash, and hundreds of thousands of returning GIs seeking to live the “American Dream,” complete with electric appliances such as washing machines and refrigerators, and soon, televisions.

The first year of post-war television production, RCA sold ten thousand ten-inch television sets. The following year, 250,000 sets had sold, “four-fifths of them RCA.”<sup>124</sup> Between mid-1945 and mid-1948, the FCC received more than 425 applications for new television stations and the agency’s decisions on granting licenses continued largely unabated until the rapid penetration of cable systems in the 1980s.

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<sup>121</sup> Edgerton, 74

<sup>122</sup> Ibid., 74-75

<sup>123</sup> Ibid., 9

<sup>124</sup> Ibid., 77

At the outset of the war, England had four to six thousand televisions in service. Germany had about 500. Japan and Russia had fewer.<sup>125</sup> In late 1945, Japan surrendered to the United States. In 1950, just five years later, the number of televisions in the U.S. reached six million; by 1960, there were fifty-two million, almost nine in ten households. It took only ten years for television to penetrate 35 million U.S. households. It took radio twenty-five years, the auto fifty, and the telephone, eighty.<sup>126</sup>

In 1952, the FCC allocated a large portion of the ultra-high-frequency (UHF) band to supply the rapidly-growing demand for television in the U.S. Within the constraints the broadcast bandwidth of very-high-frequency (VHF) transmission, only twelve channels were permitted. The new UHF allocation increased the total number of television broadcast bands to eighty-two.

The next wave of television's evolution was the color TV. Although first engineered by CBS, RCA's Alfred Schroeder filed for the first patent of a technically and commercially-viable home color television set in 1947. The application was withheld until 1952 to settle an interference claim from Germany's Werner Flechsig.<sup>127</sup> In late 1950, RCA had made technical improvements to its methods, but the FCC in the end chose CBS's system as the national standard.<sup>128</sup> In part, the decision was buffered by CBS's integrated system of color reproduction while RCA's technology was based on modifications to its existing monochrome technology. The decision may also have been

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<sup>125</sup> Everson, 69

<sup>126</sup> Edgerton, xi

<sup>127</sup> Magoun, 101

<sup>128</sup> *Ibid.*, 103

influenced in part by the makeup of the regulatory authority, all members being political appointees: positions “Nobody would take unless they wanted to use it as a springboard to private practice afterwards with clients in the industry.”<sup>129</sup> In 1952, FCC Chairman Wayne Coy resigned, becoming president of two television-and-radio stations.

On December 30, 1953, Admiral Television put its first color receivers on the market, reportedly for deductible tax-loss purposes.<sup>130</sup> Two days later, NBC broadcast the Rose Bowl Parade via a 21-station network, for which RCA arranged the installation of color and monochrome receivers in large U.S. cities. Like the earliest days of fuzzy television broadcasts, the clarity of the color left consumers wanting. A young color television enthusiast who came to see it in person remarked it was “so tiny and blurry that you had to look at the larger black and white screens to recognize detail.”<sup>131</sup>

GE chief Ralph Cordiner himself remarked, “If you have a color set, you’ve almost got to have an engineer living in the house.”<sup>132</sup> Many believed Sarnoff had “jumped the gun” on introducing color TV. *Time* magazine called it “the most resounding industrial flop of 1956.”<sup>133</sup> It took RCA Victor eight years to break even on color television sets, but only two more for the company to split its stock three-for-one, once twenty other

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<sup>129</sup> Kisseloff, Jeff, “The Box: An Oral History of Television, 1929-1961” (New York: Penguin, 1995), 553, quoted in Magoun, 103-104.

<sup>130</sup> *Ibid.*, 106

<sup>131</sup> *Ibid.*

<sup>132</sup> Fisher and Fisher, 328

<sup>133</sup> *Ibid.*

producers began to buy the improved RCA technology.<sup>134</sup> CBS and ABC began prime-time color broadcasting in 1965.

The tri-partite oligopoly created by the regulated television market supplied mostly homogenous programming: soap operas, crime dramas, game shows, cartoons, westerns, sports, and sitcoms. When one network developed a new idea, the others simply copied it, a phenomenon that continues to dominate television programming today. All three strove to appeal to the lowest common denominator to attract the highest number of viewers and hence, the highest advertising revenues.

Accepting an invitation to speak at a 1961 National Broadcasters Association, President Kennedy surprised the crowd that expected him to propose stronger censorship rules. Instead, his remarks inflated the assembled crowd:

“The essence of free communication must be that our failures as well as our successes will be broadcast around the world... That is why I am here with you today. For the flow of ideas, the capacity to make informed choices, the ability to criticize, all the assumptions on which political democracy rests, depend largely upon communication. And you are the guardians of the most powerful and effective means of communication ever designed.”<sup>135</sup>

Soon after, he deflated the same audience when his newly-appointed FCC chairman Newton Minow addressed the same convention delegates. The “mild-mannered and clerkish”<sup>136</sup> Minow began his address to the same convention delegates:

“Yours is a most honorable profession. Anyone who is in the broadcasting business has a tough row to hoe. You earn your bread by using public property. When you work in broadcasting you volunteer for public service, public pressure,

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<sup>134</sup> Magoun, 108

<sup>135</sup> Barnouw, Erik, Tube of Plenty: The Evolution of American Television (New York: Oxford University Press, 1990), 299.

<sup>136</sup> Ibid.

and public regulation...I can think of easier ways to make a living...I admire your courage—but that doesn't mean I would make life easier for you."<sup>137</sup>

He noted the broadcasters' financial health, pointing to 1960 gross revenue of \$1.3 trillion and profits of \$243.9 million, a nineteen percent return. "For your investors, the price has indeed been right," he said. He noted some of television's great achievements: *Peter Pan*, *Victory at Sea*, *CBS Reports*, *Twilight Zone*, *Kraft Television Theater*, and *Playhouse 90*. "When television was good," he said, "nothing was better."<sup>138</sup> Then he dropped the other shoe:

"But when television is bad, nothing is worse. I invite you to sit down in front of your television set when your station goes on the air and stay there without a book, magazine, newspaper, profit and loss sheet, or rating book to distract you—and keep your eyes glued to that set until the station signs off. I can assure you that you will observe a *vast wasteland* (emphasis added). You will see a procession of game shows, violence, audience participation shows, formula comedies about totally unbelievable families, blood and thunder, mayhem, violence, sadism, murder, western badmen, western good men, private eyes, gangsters, more violence, and cartoons. And endlessly, commercials—many screaming, cajoling, and offending...

"Is there one person in this room who claims that broadcasting can't do better?...

"Gentlemen, your trust accounting with your beneficiaries is overdue. Never has so few owed so much to so many...

"I understand that many people feel that in the past licenses were often renewed *pro forma* (original emphasis). I say to you now: renewal will not be *pro forma* in the future. There is nothing permanent or sacred about a broadcast license."<sup>139</sup>

Although his words were not hollow rhetoric, his powers were limited by the Federal Communications Act. But when National Telefilm Associates – operating on channel 13 in New York – moved to auction its FCC license to the highest bidder, Minow

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<sup>137</sup> Ibid.

<sup>138</sup> Ibid., 300

<sup>139</sup> Ibid.

was incensed: holding that the license being auctioned – the primary asset of material value – was public property. With Telefilm’s hard assets estimated to be worth about a half million dollars, a group that included Paramount Pictures and David Suskind offered \$6.6 million. Minow convinced the FCC to schedule hearings on the desirability of noncommercial television outlets in New York and Los Angeles. Bids soon shrank and bidders began withdrawing their offers. Minow displayed exceptional dexterity in maneuvering around the barriers to achieve his transparent goals of uplifting television programming: particularly educational and/or public broadcasting. Shortly after the hearings, with a pall cast on the license’s value as a result of Minow’s moves, National Telefilm Associates asked the FCC to approve transferring the channel 13 license to a noncommercial group.<sup>140</sup>

His “vast wasteland” remark would become legendary in discussions surrounding television in the U.S. Minow’s subsequent actions included persuading Congress to require new TV sets to receive UHF signals. He fought what he considered to be networks’ monopolies on programming, particularly since many of the television manufacturers also owned the TV stations broadcasting solely on the limited VHF band. He moved to ban “network option” clauses in network affiliates’ contracts that gave the networks control over their affiliate’s broadcasting schedules: a sequel, in effect, to a similar case in 1948 banning *Paramount et al’s* control over local theaters’ choices of

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<sup>140</sup> Ibid., 300-302



films.<sup>141</sup> President Kennedy reportedly gave Minow continued encouragement, and Minow's activism kept the broadcasting industry "in a state of uneasiness."<sup>142</sup>

Following television networks' uneasiness with Minow's policies, came new entrants into competition with the three traditional networks, mostly beginning in the 1970s: from public broadcasters, independent stations and cable companies that helped create the first "superstations" such as Chicago's WGN and Atlanta's WTBS. Cable companies brought HBO – the first all-movies channel – to the U.S. household. Behind it followed HBO 2, and HBO 3: then American Movie Channel, Encore, Showtime and Starz, and other movie channels that have become staples of cable TV. On the heels of these new entrants was the explosion of other new cable-only channels, such as CNN, the first all-news channel, and TNN, TNT, the Cartoon Network, and the Weather Channel, all owned by Broadcasting, later to merge with Time Warner.

The decade of the 1980s brought with it the introduction of the VCR, the first "time-shifting" device affordable to the masses. Prior to the VCR, only kinescopes – films made from a broadcast studio monitor's feed – had enabled time-shifting. It became a common practice due to stations' network programming schedules that often prevented them from broadcasting popular programs live, such as Ted Mack's *Original Amateur Hour* and *Wheel of Fortune*.<sup>143</sup> But time shifting technology for the home television user had wait until the introduction of the VCR. When it came, the VCR's output jacks enabled home television users to connect their home stereo systems to the device, permitting higher

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<sup>141</sup> Ibid., 303

<sup>142</sup> Ibid.

<sup>143</sup> Magoun, 97

audio fidelity and improving the overall viewing – and listening – experience. A parallel phenomenon was the affordability of video cameras, replacing film cameras with a technology that allowed the average American to record and instantly play back audio and video on the camera’s screen on television using a VCR. This technology birthed “America’s Funniest Videos,” still a popular program, and one whereby multiple formerly-passive audience members create content for the masses.

TV HH penetration peaked in the 1990s when TV screens continued to become larger and multiple input and output jacks permitted easy access to the television’s screen for more technologically-sophisticated gaming devices in addition to the traditional one-way video content that still describes the vast majority of television use. Meanwhile, the growth of viewing options continued to explode.

The Home Shopping Network competes with QVC, each giving customers the ability to call 800-numbers to purchase products displayed on the screen. The Walt Disney Company, owner of ABC, launched the Disney Channel and purchased ESPN, and created ESPN 2, ESPN 3, ESPN U, and just recently, ESPN 3-D. Fox launched Fox News Channel and Fox Business News. NBC partnered with a number of media companies to produce MSNBC and CNBC. C-Span now offers two channels. Today, viewers can select from among various travel channels, cooking channels, music channels, learning channels, comedy channels, home improvement channels, movie channels, nostalgia channels, science channels, history channels, and more. A scan of digital channels available in Muncie Indiana reveals 510 channels ready for local

Comcast Cable subscribers. As for the airwaves, the National Association of Broadcasters reports there are 1,780 television broadcast stations in the U.S.<sup>144</sup>

If that weren't enough competition for traditional television viewers, a good deal of viewing today takes place on MICDs. Vlogging site YouTube is readily accessible on MICDs wherever Internet access can be found. Hulu, an all-Internet service, feeds traditional television programs to computer and MICD-users' devices. As the Internet becomes an even more powerful force in television programming and MICDs continue to improve and more deeply penetrate U.S. HHs, increasing pressures are placed on traditional broadcasters', cable systems' and satellite systems' model: one that has focused nearly all of its resources on bringing one-way content into the home.

A strong argument can be made that while television will remain a staple in the American home, its business model is changing, and not necessarily for the benefit of traditional providers. One of their strategies to combat the dilution and the diffusion has been to produce and distribute content across multiple platforms: traditional televisions, computers, and MICDs. Another strategy designed to keep the viewing public engaged is offering interactive television services. Evidence of the former is ample; evidence of the latter appears scant.

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<sup>144</sup> National Association of Broadcasters. <http://www.nab.org/television/> accessed Mar 24, 2013.

## PART II. LITERATURE REVIEW

The historical case study above is supplemented by an in-depth review of literature focusing on U&G research and seeking to generalize upon or challenge long-held common findings within the field. This section includes an analysis of the critical reviews some researchers embrace in regard to U&G research. Another focus of the literature review attempts to uncover television producers' and distributors' attempts at introducing iTV over the past decades. The combination of the two literature searches forms the basis for an in-depth analysis designed to compare and contrast past iTV excursions with current television users' behaviors regarding the technology and how and for what purposes they use iTV.

Pertinent research into the question of TV's place as an Internet-connected device can be found in a number disciplines including electronic communications technology and uses and gratifications (U&G) research, but little research addresses the question directly. Still, a review of electronic mass communication technology's chronological development and the similarities and differences in how it occurred relative to TV and the Internet, reveal certain constraints that may limit television's usefulness as an Internet device in the U.S.

Relatively little scholarly research exists to help communication researchers understand the technology and how it may impact – or more particularly constrain – television's relative absence of interactive features, but a number of communication-

related trade publications and general circulation magazines and periodicals are available to augment peer-reviewed works addressing the technologies, their metamorphoses, and their component hardware sets. Conversely, a significant body of scholarly U&G research exists to help explain people's motivations for using media, the benefits they derive therefrom, and how these factors may influence peoples' desires – or lack thereof – for iTV.

Each category of inquiry contributes in different ways to researchers' abilities to maintain currency on the topic in a rapidly-changing mass media environment. Periodicals provide insight through more regular summaries and analyses of new technology and of consumers' demonstrated appetites for media while scholarly U&G research focuses on MICDs in general, and TV in particular, providing insight into people's motivations for and uses of media. Taken together, these two disciplines and paths of inquiry help frame new and broader perspectives into the state of MICD technology and TV's relative disconnect from it.

*Technology and interactivity.* Donatin and Fitzgerald describe cable and phone companies' competition to build "interactive electronic superhighways"<sup>145</sup> to deliver home shopping and movies on demand. While the new features described by the researchers represent enhancements in the types and number of programming options from which a consumer might otherwise be able to choose, the enhancements nonetheless provide only more numerous and more varied choices from among passive media options without the ability create content, such as bidding on a TV-offered product in auction

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<sup>145</sup> Scott Donatin and Kate Fitzgerald. "Cable leads interactive TV surge," *Advertising Age*, 14 June 1993, 8.

format or selecting a product similar but not identical to the one offered on TV. Nor do these enhancements permit consumers to rank the quality of the product, the speed of delivery, or the customer service offered by the vendor for other consumers' reviews in making their own purchasing decisions. In this scenario, where TV shopping programs and channels may result in active consumer purchasing decisions, the U.S. TV shopper is nearly always directed to the telephone or the Internet to consummate the transaction. For paid "on-demand" movies however, the cable or phone company – also the direct seller with existing commercial agreements with consumers in place – can readily bill the consumer directly through the companies' existing billing systems. This kind of process is readily facilitated by a compelling case for payment in full: disruption of service until the account is settled.

Morgenson cites Home Shopping Network executives who called the new HSN network "interactive television" and "revolutionary."<sup>146</sup> Although she does not address interactivity, concerning HSN being revolutionary by selling items on TV, she says "We're not so sure," citing Veg-o-matic, the "kitchen gizmo – it slices; it dices – pitched on late-night television." The fundamental difference between HSN and the Veg-o-matic is only HSN's variety of products for sale. Angus<sup>147</sup> describes Canadian company Videotron's technology that would allow viewers to select the angles from which to view a hockey game and U.S. Cablevision's test of similar technology in the states. Marbach, editor, reports on TV watchers in 300 Springfield, Massachusetts homes who would

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<sup>146</sup> Morgenson, Gretchen. "Fabulous fads that fizzled?" Forbes Magazine, 23 February 1987, 40-49.

<sup>147</sup> Robert Angus, "Interactive TV-you choose the angle," Video Magazine, Jun 1990, 20.

“give up their roles as couch potatoes – and become couch directors,”<sup>148</sup> able to switch from one camera to another to watch a sporting event, and to select a less strenuous morning exercise workout, for example.

Others describe technological developments designed to enable a rich interactive experience that simply never materialized in any significance. Nalley, for instance, describes a number of companies’ products “designed to turn TV game show viewers into contestants.”<sup>149</sup> He posited that participating from the home via the TV with a peripheral device designed strictly for this purpose may be “close at hand.” He cites Interactive Systems, Inc. and Interactive Networks as companies developing the play-along devices. At an estimated price of about \$450, these devices, “about half the size of a standard PC keyboard,” would feature an LCD display, four keys on each side, a space bar below, and an embedded FM receiver making it “completely wireless and mobile.”

Fisher summarizes reports on a partnership between an IT provider and Freedom Newspapers to develop an iTV classified advertising service<sup>150</sup> to hit the market in 1994, one of three on-demand shopping services to be offered along with Yellow Pages and J.C. Penney catalog services. Wingo reports on the FCC’s plan to assign frequencies designed to enable iTV that includes an STB<sup>151</sup> to receive viewer signals from a remote control device using FCC-licensed radio waves to transmit and convert user input into a

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<sup>148</sup> William D. Marbach, “When The Credits Roll, The Director May Be You.” BusinessWeek Magazine 19 March 1990, 117.

<sup>149</sup> Richard Nalley, “Changing Channels,” Omni Magazine, June 1990, 58.

<sup>150</sup> Christy Fisher, “Classifieds come to interactive TV,” Advertising Age, 17 May 1993, 13.

<sup>151</sup> Walter S. Wingo, “FCC Plans Frequencies for Interactive TV,” Design News Magazine, 11 February 1991, 17.

menu screen for interactive purposes. Levin, covering iTV, notes a competitive “battle as companies line up for a piece of the fast-emerging industry”<sup>152</sup> and reports on a planned 1993 rollout of iTV that would offer news, interactive advertising, and possibly coupon printers in the home. The iTV system he describes would allow viewers to conduct banking transactions, order groceries and pizza, flowers and magazines, using their remote control devices.

Weinstock cites a report by market researcher Frost & Sullivan<sup>153</sup> predicting \$1.445 billion in revenue in 1996 from iTV delivered by telephone, cable and satellite companies. He identifies key industry leaders noting that start-up company TV Answer of Reston, Virginia “has a fully two-way cellular system planned.” Consumers could use the system to shop or bank at home, program their VCRs, or request more information on advertised items or news programming. Press reports that the “interactive TV community is aiming for users in their homes,”<sup>154</sup> and that shopping and movies remained the staples of iTV applications.

Saying “The whole idea of interactive television got a bad rap in the last decade,” Yang reports on AOL’s plan to bring the Internet to TV,<sup>155</sup> noting Time Warner Inc.’s failed attempt to deliver movies on demand in Orlando, the collapse of Tele-Communications Inc. and Bell Atlantic Corp.’s planned merger “to combine the promise

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<sup>152</sup> Gary Levin, “Interactive TV rivals poised for battle,” Advertising Age, 30 November 1992, 3.

<sup>153</sup> Neal Weinstock, “Interactive TV’s growth means new opportunity,” Advertising Age, 25 January 1993, M12.

<sup>154</sup> Larry Press, “The Internet and Interactive Television,” Communications of the ACM, 36, (December 1993): 19-23.

<sup>155</sup> Yang, Catherine, “Turn On, Tune In, Interact,” Business Week, 29 May 2000, 90.



of television, telecommunications and computers,” and Microsoft Corporation’s “stumbling” efforts to deliver “I-TV,” buying startup company WebTV to do so. Giving AOL credit for “bravery” amid such a backdrop, she covers AOL’s plan to launch AOLTV in June of 2000, a service requiring an STB that would deliver email and instant messaging, referring to it as “information on demand” using the TV. She identified AOLTV’s rivals as AT&T, Microsoft, Charter Communications, Cox Enterprises, and Comcast Corp.

According to Port, Hafner, and Block, Michael J. Freeman, President of ACTV Inc., speculated that “In a few years, kids like my son Zachary are going to ask wonderingly, ‘Dad, is it true that in your day all you could do was *watch* television? Wasn’t that awfully boring?’”<sup>156</sup> His plan as President of ACTV was to give viewers “the power to not just change the channel but what’s on the screen.” With the promise of multiple viewing options, the ability to alter stories’ plots and tailor exercise routines, “Some experts predict that it could be the biggest thing to hit consumer electronics since the video cassette recorder.” The authors cite Diana Gagnon, research associate at Massachusetts Institute of Technology’s Media Laboratory, who “hopes iTV will do more than just entertain by helping to undo the passive, couch-potato culture that TV has spawned and return a sense of control to viewers.”<sup>157</sup>

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<sup>156</sup> Otis Port; Katherine M. Hafner; and Robert Block, “TV That Lets The Viewers Call The Shots.” Business Week, 02 May 1988, 100.

<sup>157</sup> Ibid., 104

Wicklein recounts his personal experience with QUBE, “a two-way interactive cable system that Warner Cable Corporation has installed in Columbus, Ohio.”<sup>158</sup> With financial backing from the cable company’s parent Warner Communications Inc., the system includes home security features that sense emergencies in the home and alert emergency responders, as well as interactive TV programming that permits one-to-one, one-to-many, and many-to-one communication between human beings. According to Wicklein, much of the interaction of this type occurs via “Columbus Alive,” a cable channel that invites participation by viewers who help create content in real-time. The author recalls a question posed by a talk show program’s host who “told the audience that an estimated 80,000 homosexuals live in the Columbus ‘metro’ area” and asked viewers how many of them knew homosexuals. A statement superimposed on the screen directed viewers to push button number one if they knew a homosexual and number two if not. “Within seconds, the technology displayed the results on the screen: 65 percent yes, 35 percent no.”

Selecting another QUBE channel, Wicklein found a college credit course on TV with an instructor posing questions directly to the class, “Electronically updating the Socratic method, he salted his lecture with question-and-answer segments, asking students to use the response buttons to answer ‘true’ or ‘false’ or pick the correct answer from five choices flashed on their screens.”<sup>159</sup> The author notes parenthetically that in some QUBE campus classes, students who answer the questions correctly are instantly rewarded with a red message light on the remote control device signaling the correct

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<sup>158</sup> John Wicklein, “Wired City, U.S.A.” *Atlantic Monthly*, February 1979, 35.

<sup>159</sup> *Ibid.*, 37

answer. Another feature of QUBE is its ability to know, “down to the last household” exactly how many TVs are tuned to each of its channels, a capacity for direct knowledge gathering that could make Arbitron and Nielson ratings and their sampling methodologies obsolete.

Wicklein’s experience emphasizes the importance of the research question, ‘Why, amid a technology revolution that continues to provide new technologies that permit high levels of interactivity using standard home television sets, are home televisions largely absent from mediation of higher-level interactive communication?’”

Others describe the impacts of cable and phone companies’ technological development, particularly their focus on conventional TV programming first, and discovering ways to merge Internet/broadband technology into the traffic flow on their information highways second, an approach that subordinates broadband Internet traffic in ways other than merely its chronological place in mass communication technology development: notably, U.S. Internet speeds relative to those technologies employed to deliver Internet-like signals outside the U.S. Still others describe problems media companies have faced in the development of iTV.

Kelly, reporting on media companies’ delays in delivering interactive television, summarizes Cablevision’s, GTE’s, AT&T’s, Pacific Telesis’, Ameritech’s, Nynex’s, Bell Atlantic’s, and Time Warner’s plans to bring iTV into the home.<sup>160</sup> She quotes executives’ explanations of protracted time frames in the delivery of video on-demand, news on-demand, and interactive music, identifying Time Warner as the first company to

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<sup>160</sup> Lindsey Kelly, “Interactive TV’s Rough Road,” Advertising Age, 13 March 1995, S12.

get an iTV test to market, with “about 50 homes.” Some of the other companies, according to Kelly, were scrapping their plans to test market the service, instead going straight to market. Quoting Walt Hildenbrand, VP of Technology at Cablevision: “We’ve gone through a couple of years of an awful lot of promises and an awful lot of hype and the one thing we’ve found is that the more you talk about this stuff, the less soon it gets to market. I don’t know how else to break this cycle except to go to market or we’ll still be talking about it this time next year.”

Mossberg, writing for the *Wall Street Journal* (13 July 2000), summarizes AOL’s successes and problems with Internet access and Dvorak discusses disadvantages of merging TVs with computers.<sup>161</sup> Offering a more in-depth view of certain technology issues surrounding iTV is Moyer’s description of legacy electronic communications engineering.<sup>162</sup> Designed for the telephone, he notes that Internet technology was a secondary consideration. Cable companies, he claims, “are television distributors that also happen to deliver the Internet, not the other way around” and that “their systems are still optimized for television.”

Quoting Searls, he continues, "There is a standing engineering set of specifications that almost require the Internet be subordinated to television." He marks the late 1990s as the year when communication technology engineers “figured out a way to deliver digital data on top of cable television signals” giving cable customers the ability to receive broadband Internet without any new additional hardware infrastructure. In the case of

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<sup>161</sup> John C. Dvorak, "PCs are PCs, and TVs are TVs, and nary the twain shall meet," *PC Computing*, 6 June 1992, 46. *Academic Search Premier*, EBSCOhost (accessed March 20, 2013).

<sup>162</sup> Michael Moyer, “The Everything TV,” *Scientific American*, November 2009, 74-79.

DSL, he claims phone companies too, repurposed copper telephone lines for high-speed Internet, and that it was a secondary concern in their systems as well.

He notes some impacts of the “television first” technology, claiming the U.S. ranks 18<sup>th</sup> in average broadband speeds – slower than Iceland, Romania, and the Czech Republic – and that it operates at one-third the speed of South Korea with the fastest average download speeds. He cites HP’s Personal Systems Group VP and chief technology officer Phil McKinney that the U.S. Internet network is “fundamentally constrained.”

Marks describes a scene-analysis feature that permits television viewers to select a personalized episode starring only their favorite actors and actresses.<sup>163</sup> The software, “Story Visualizer,” or StoViz, is a personal computer technology that uses stored content on DVRs. The stored content can be accessed by the software to create scenes and episodes that will create a completely customized program.

*Uses and gratifications.* Rubin states the need for further heuristic development in uses and gratifications research, one that approaches media viewing motivations as a set of interactive needs and expectations, not as isolated, static traits.<sup>164</sup> To this end, he employed a multivariate quantitative research methodology designed to further understand and better explain TV and other media uses in a more complex framework of human motivations. His multiple regression analysis established that habit, pastime and entertainment motivations contributed significantly to “substantial amounts of television

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<sup>163</sup> Paul Marks, "A show of your own," New Scientist Magazine, 10 November 2012. 21 *Academic Search Premier*, EBSCOhost (accessed March 17, 2013).

<sup>164</sup> Alan Rubin, “Television uses and gratifications: The interactions of viewing patterns and motivations,” Journal of Broadcasting & Electronic Media, (Winter, 1983): 49.

viewing and to a felt affinity with the medium” and that the entertainment motivation of television strongly contributed to a sense of realism in its content. In 1979, he identified six child and adolescent television viewing motivations: learning, passing time/habit, companionship, escape, arousal, and relaxation.

McQuail, Blumler and Brown, cited in Rubin’s work and others’, study and categorize motivations consisting of habit, relaxation, companionship, passing time, learning, arousal, and escape.<sup>165</sup> Palmgreen and Rayburn identify relaxing, learning about things, communication utility, forgetting, passing time, companionship and entertainment as primary TV viewing motivations and gratifications.<sup>166</sup>

Bogart describes mass media as “one-way communication” and traces the origin of the term “audience,” to the theater,<sup>167</sup> claiming it was logical for the term "audience" to be applied directly to radio first and television afterward. These media, he says, “like the movies, reach people who cannot play back their reactions directly to the performers.” In analyzing TV ratings and audience’s demographic composition, he found remarkable consistency in those viewing dramatic, quiz, comedy, mystery and audience participation programming, noting, “This seems to reflect the role of television viewing as a pastime.”<sup>168</sup>

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<sup>165</sup> McQuail, Blumler, and Brown . “The Television Audience: A Revised Perspective,” Sociology of Mass Communications, (Middlesex, England, 1972); Media Studies, Denis McQuail, ed., 438-454.

<sup>166</sup> Philip Palmgreen and J.D. Rayburn II. “Uses and Gratifications and Exposure to Public Television: A Discrepancy Method,” Communication Research, (April, 1979): 155-179.

<sup>167</sup> Leo Bogart, “Is It Time to Discard the Audience Concept?” Journal of Marketing, (January 1996): 47- 48.

<sup>168</sup> *Ibid.*, 52

Katz, Blumler, and Gurevitch reference Bogart's 1966 thesis that "most mass media experiences represent pastime rather than purposeful activity, very often [reflecting] chance circumstances within the range of availabilities rather than the expression of psychological motivation or need,"<sup>169</sup> contrasting it sharply with McQuail et al's (1972) work describing five elements of a U&G model, the first of which is that the audience is "conceived of as active," or goal-directed. McQuail et al's typology consisted of four categories: diversion, personal relationships, personal identity, and surveillance.

Katz et al advanced U&G research with a critical review of prior studies' disregard of theoretical development in the field,<sup>170</sup> an approach that among other perspectives, caused them to describe most U&G research more often as a "uses and gratifications approach," or as Lundberg and Hulten (1968, cited by Katz et al) described it, a "uses and gratifications model." In summarizing important U&G research, they pointed out that each major piece had developed its own classification scheme, but when the discovered functions were analyzed, they revealed among other things, shared gratifications categories. The researchers summarize findings of U&G research categorized by certain media, stating, "...it is clear that the need to relax or to kill time can be satisfied by the act of watching television, that the need to feel that one is spending one's time in a worthwhile way may be associated with the act of reading (Waples, Berelson, & Bradshaw, 1940; Berelson, 1949) and that the need to structure one's day may be satisfied by having the radio 'on' (Mendelsohn, 1964)." They conclude the discussion of

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<sup>169</sup> Elihu Katz; Jay G. Blumler, and Michael Gurevitch, "Uses and Gratifications Research," Public Opinion Quarterly, (Winter 1973-74): 510-511, 513.

<sup>170</sup> *Ibid.*, 510

media U&G noting that watching television or going to the theater with the family may fulfill a desire to associate with the family.<sup>171</sup>

Critical of U&G research that had advanced little beyond charting and profiling activity, Katz et al report consistent findings “that one medium is deemed better at satisfying certain needs than others.”<sup>172</sup> Their assessment of U&G differentiated by medium is supported by Rubin’s (1983) conclusion, “television use motivations can effectively explain or predict viewing pattern consequences.<sup>173</sup> In particular... analyses further explained two television viewer types,” the first of which uses TV “out of habit and to pass time – when there’s nothing better to do, to occupy idle time, and to relieve boredom – and for entertainment – because television viewing provides amusement and enjoyment.” He notes audiences’ “dependence on television emphasizes the *medium* itself,” and continues, “...habitual and entertainment users of television view considerable amounts of a perceived realistic medium with which they feel a particular affinity, *regardless of program content*” and that “...analyses further establish that habit/pass time and entertainment viewing motivations significantly contribute to... a felt affinity with the medium.” In this discussion, Rubin concludes, “the second viewer type uses television to seek information or to learn, and not for escape.” He claims this type of motivational use pattern results in higher overall television viewing levels and says these viewers’ “use of television emphasizes the *content* of a communication medium” and that

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<sup>171</sup> Ibid., 514

<sup>172</sup> Ibid., 514-515

<sup>173</sup> Alan M. Rubin, “Television uses and gratifications: The interactions of viewing patterns and motivations,” Journal of Broadcasting & Electronic Media, (Winter 1983), 48-49.



it “highlights the active seeking of messages...a contrast to the habitual, entertainment motivational structure that found gratification in increased television watching, but not in specific program content.”<sup>174</sup>

These findings reflect McLuhan’s view of a medium itself as constituting a central unit of analysis for media research and explication.<sup>175</sup> He says, “...many students of the media assume that it is the content of media, whether of the sung word, spoken word, the written word that really matters. It is this sort of assumption that has tended to divert attention away from the forms and parameters of the media themselves.”

Sociological research as it relates to media suggests loneliness as a predictor of television viewing according to Chory-Assad & Yanen,<sup>176</sup> and Perse and Rubin.<sup>177</sup> Katz, Gurevitch and Haas also address media users’ social and psychological connections with specific content and medium,<sup>178</sup> citing early U&G research by Cantril as an approach to “studying the gratifications which attract and hold audiences to the kinds of media and the types of content which satisfy their social and psychological needs...It argues that ...the media are at least as much agents of diversion and entertainment as of information

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<sup>174</sup> Ibid., 50

<sup>175</sup> George Sanderson and Frank Macdonald, Eds. McLuhan, the Man and His Message, Herbert Marshall McLuhan: The Role of New Media in Social Change. (Golden, Colorado: Fulcrum Inc., 1989), 35.

<sup>176</sup> Rebecca Chory-Assad and Ashley Yanen. “Hopelessness and Loneliness as Predictors of Older Adults’ Involvement With Favorite Television Performers,” Journal of Broadcasting and Electronic Media, (Jun 2005): 181-202.

<sup>177</sup> Elizabeth M. Perse and Alan M. Rubin. “Chronic Loneliness and Television Use,” Journal of Broadcasting and Electronic Media, (Winter 1990): 37-53.

<sup>178</sup> Elihu Katz; Michael Gurevitch; and Hadassah Haas, “On The Use Of Mass Media For Important Things,” American Sociological Review, (April 1973): 164-181.

and influence” and that “the selection of media and content, and the uses to which they are put, are considerably influenced by social role and psychological predisposition.”

Bondad-Brown, Rice, and Pearce provide an in-depth discussion of U&G theory noting Rubin’s (2009) conclusion that motivations and audience activity are the core elements of uses and gratifications.<sup>179</sup> They cite Papacharissi and Rubin in identifying motivations for Internet use: email, chatrooms, newsgroups, browsing, personal utility, pass time, information seeking, entertainment, and convenience. One might rightly suggest today’s social media sites are the modern equivalent of chatrooms more than a decade ago.

Bondad-Brown et al’s research questions include, “How do U&G motivations for TV compare to those for online user-shared video?” and “How are U&G motivations associated with TV viewing and with online user-shared video use?” Among other findings, they noted online user-shared video content provided “considerably more ways” that one might engage with the medium.

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<sup>179</sup> Beverly A. Bondad-Brown; Ronald E. Rice; and Katy E. Pearce. "Influences on TV Viewing and Online User-shared Video Use: Demographics, Generations, Contextual Age, Media Use, Motivations, and Audience Activity." *Journal Of Broadcasting & Electronic Media*, (October 2012): 471-493. *Academic Search Premier*, EBSCOhost (accessed March 17, 2013).

### PART III. PRIMARY RESEARCH

To explore for potential changes in people's uses of television and the gratifications they derive from it, the researcher conducted pilot survey research designed to help identify whether today's media environment may be affecting people's stated uses of media and the gratifications they derive from media. To understand the topic in greater depth, the researcher also conducted three focus groups, two with persons 30 years of age and older and one with people ages 18 to 29. The primary purpose of this method is to develop a more in-depth understanding of how people use television in their homes with the intent to identify areas of alignment with historical U&G findings and areas of divergence. A secondary, but important outcome of focus groups in this context is to identify areas for further quantitative and qualitative research to examine areas of divergence in greater detail.

#### **Focus groups**

The researcher conducted focus groups to encourage discussion surrounding how and why people use their home televisions. A series of prepared questions were asked to participants in each group, and the researcher employed open-ended follow-on questions designed to expose their uses and gratifications in greater depth.

#### *Prepared questions:*

1. Approximately how many hours per week do you spend watching television?
2. What programs do you like to watch?

- 2A. What appeals to you about these programs?
3. Do you use your TV for any purposes other than watching programs? If so, what are they?
4. Do you own a smartphone, notepad, or iPad? If so, what do you use it for?
5. Does your TV offer any of the same features? If so, please describe them.
6. What does the phrase “interactive TV” mean to you?
7. Are you aware of any interactive offerings from your provider, and if so, what do you know about them and have you used them?
8. How well does your definition of interactive TV describe the services?
9. Is your TV connected to the Internet? If so, how does that affect your uses of it, if at all?
10. Have you used Skype? If so, how often and on what devices?

*Responses.* Participants’ reactions were coded to identify common thematic replies.

Complete findings from focus groups sessions are detailed in in the Appendix section of this report.

Q1: The thirty years and over (“30+”) participants reported relatively high numbers of hours spent watching television compared with those under thirty years of age (“<30”). The most common reply among the 30+ group was 11 to 15 hours, but two reported spending more than 50 hours per week in front of the television, one noting that it depends on the season, a finding also identified in the literature review (the focus groups took place in late winter). Only one reported zero to five hours. The highest number of hours reported by members of the <30 group was 21 to 25. Members from each group reported that the television was routinely on “in the background.” The researcher noted

the response and asked participants to report time actively engaged with the television. Background use of television was a commonly reported use, particularly for multi-tasking.

Q2A: The question “What appeals to you” about the programs participants watched generated robust participation in all three sessions. The most common response across all three groups was entertainment (17). The second most common appeal was information (13), followed by escape (10), and companionship (9). The 30+ groups’ input spanned eight separate categories of appeal, while the <30 group identified only two: entertainment and escape. Participants from both 30+ groups also identified nostalgia as an appeal.

Q3: Regarding use of the home television set for purposes other than watching programs, responses were well distributed. The most common responses among 30+ participants: displaying photos (6), gaming (5), listening to music (5), permitting television use as a reward for children (5), and watching television while exercising (4). Gaming was the top pick among <30 participants.

Q4: Regarding ownership of MICDs, ten of twelve owned at least one among the 30+ groups; the other two had mobile phones, but not smartphones. All of the <30 group participants owned a smartphone. The most common uses of MICDs among 30+ participants were search (6), email (5), information (5), and texting and social media (4 each). Among <30 participants, information was identified as the most common use (5), texting was second (3), and social media was third (2).

Q5: When asked whether their televisions offered similar services as MICDs, there was some confusion. One of the 30+ participants reported connecting his TV to an

internet cable so he could watch television programs and other video feeds, giving him a richer offering of content, often with fewer commercials. Another said she could connect her computer to the internet to display content on a larger screen, but the idea didn't appeal to her. She called it "weird." Another said, "I have no idea. I hope not."

All twelve 30+ participants indicated that their TVs enabled gaming. The second most common reply was texting, a response influenced by Group One participants who all concluded after a discussion on the topic, that their television could be part of a chain of technology devices that permitted every activity available on the internet by connecting a computer to the television. All participants <30 indicated their TVs enabled gaming – and only gaming – from among nine discreetly-defined uses.

Q6: Asked to define interactive TV, participants 30+ selected nearly every coded category at least once, gaming receiving the most mentions (7). Across all groups, there was a wide variety of input more insightful in description than evident in coding.

Selected comments included:

<30: "For me, since there is no definition of interactive, being interactive TV would mean ways of actually interacting with the TV so actively – not passively – engaged is what is taking place."

< 30: "For me interactive TV is about interacting with the TV content via a different device, like...watching your movie and something comes up and you check it... not something you just get curious about. But TV prompts you to go tweet about some things, or it prompts you to go look for some content which is elsewhere, but if you find it you get a reward of some sort. It makes you do some things other than just watch."

<30: “Being able to interact and see your results on the screen. Like with live news and live shows...I know on the Today Show they would read their Facebook comments or post a poll, and then talk about it live, so part of me always wants to go check it out. Sometimes tweets appear along the bottom, like on news shows or sports shows.”

30+: “You can request something, or help make something happen on the screen like determine the ending of a show, or request something and the TV will respond with something you've asked for.”

30+: “When you go into the cable and get programs that aren't broadcast right now, but they're available whenever you want them.”

30+: “Between entities: either another person or a machine. I do something, and it does something.”

30+: “To me, it implies some level of control. I can do something and make something happen.”

30+: “Give and take.”

Q7: The question as to whether their television providers offered interactive services also generated a wide variety of responses among participants. “I have no idea” was the first comment received during the Focus Group One (30+) session. Others in the 30+ groups said, “I think they do but I don't know what all that means,” “I don't know” said another. Other comments included, “They've not done a good job of promoting it at all” and “I consider [watching asynchronous programming] interactive. I can make it happen; I can decide if I want to watch that or not” and “You can stop it and come back to it later and pick it up where you left off.”

Comments from the <30 group included, “I would say that interactive is more than just that [the ability to store programs]. Just that doesn’t make it interactive, but you can do that,” “something comes on the TV and then you have to use your computer, phone, or iPad in order to...vote, so now you are participating in creating content you are watching, that kind of thing,” and “It’s not being broadcast at that moment. It’s sitting somewhere. I get to pick whether it comes into my home.”

Q8: Asked how well they thought their definitions of interactivity described current offerings, one <30 participant replied, “Whenever a cable company says ‘interactive TV’ it’s just really an option to buy stuff, so when a commercial comes up, they say ‘use the interactive remote now to buy it.’ It’s not like games or entertaining, it’s monetary on their side.” Another said, “On certain movie commercials you can buy the video now. A little banner pops up.” Another participant said, “The difference is that you know the content you’re receiving. You have a purpose in going to stored content versus the content you may get if you just change the channel which may be a waste.”

Comments from the 30+ groups included, “I expected by now there would be more interactive TV. I thought by now we’d be able to dictate when we want to watch anything. But that doesn’t seem to be happening. We still have to tune in at 8 o’clock;” “I can do anything on that big screen that I can do on a computer;” and “My husband will...take the Internet cord and plug it into his laptop on the treadmill and he’ll watch Hulu and things like it.”

Q9: On the question of whether their televisions were connected to the Internet, and if so, how that affects their uses of TV, <30 participants’ responses included, “Yes, the television set itself is connected to internet-enabled devices like the laptop or Playstation,



but not in the living room, so our cable TV is just a TV, just for watching live content;”  
“Our TV is hooked up to the internet: Netflix. There are programs installed onto the TV;”  
“We're able to use Netflix, so then it is connected;” and “There is a computer inside of a  
TV that has the Netflix program installed. It is not going through Netflix.com.”

Respondents 30+ said, “It probably functions with the Internet. The Internet actually  
functions with the Wii which then runs the image through the TV” and “I wonder if that's  
happening with people younger than 30. Our son and our daughter don't have any kind of  
TV service. They have television sets, but they watch videos: taped things. Everything  
else is on their computers.”

Q10: Regarding Skype, nine of twelve 30+ participants reported using it or Apple's  
Face Time: regarded as the same thing. Devices they used for “Skyping” included iPads,  
iPhones, and computers. All <30 participants reported using Skype/Face Time on iPads,  
iPhones, and computers. One <30 participant noted that his “smart TV” was Skype-  
enabled. Asked how much he'd used the feature, he said, “I never use that. It is just easier  
to use my phone or computer.”

### **Pilot Survey**

The researcher sought to identify and quantify how people use media to explore to  
what degree, if any, people's uses and gratifications today may confirm or contradict  
common findings within the field. To do so, he sampled a population of university  
students and employees. The researcher recognizes this population is not representative  
of adult media users and cannot be used to generalize to any population except perhaps  
similar university students and employees. Although specific characteristics such as  
education levels of the sampled population are unknown, it can be inferred that the

population, and hence the sample, is likely to be more highly educated and younger than the population at large. The survey results confirm the latter. Nonetheless, a pilot survey of this type may inform researchers' further explorations by identifying specific areas of divergence that could guide further generalizable scientific inquiry on the topic of how people use media today.

With access to a large database of (73,192) email addresses, the researcher employed a randomization process to eliminate and include email addresses, repeating the process with each new smaller set, and using a smaller range of random numbers to reach a total participant population in the 5,000 to 6,000 range. After four rounds, the sample population totaled 5,150. He emailed the survey using an anonymous link method to track who had replied and sent a total of three email messages: one to everyone within the sample population and two reminder emails to those who had not responded. Emails were sent at different times of the day and on different days of the week. The final number of survey participants totaled 219; 177 completed it.

*Initial Results.*

Table 1. Survey participants: age

Age	Responses	Percent
18 to 29	133	65%
30 to 39	18	9%
40 to 49	11	5%
50 to 59	33	16%
60 to 69	9	4%
70 to 79	2	1%
80 or older	0	0%
Total	206	100%

The impacts of a university population are evident in the respondents' age distribution. The skewing toward younger participants, however, provides opportunities for some important specific analyses discussed and presented in Section VII, below.

Table 2. Survey participants: gender

Gender	Responses	Percentage
Male	75	36%
Female	131	64%
Total	206	100%

Women participants in this pilot survey significantly outnumber men, further evidence that the results of this survey cannot be reliably generalized to the adult population of media consumers.

Table 3. Hours spent using media

	0 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	> 30	n	Mean
...listening to radio (including podcasts)?	55.2%	25.6%	5.9%	6.9%	2.5%	1.0%	3.0%	203	1.91
television at home (including stored	30.5%	28.5%	16.5%	10.5%	7.5%	3.0%	3.5%	200	2.59
Internet (from anywhere)?	6.4%	15.8%	13.4%	13.9%	16.3%	12.4%	21.8%	202	4.42
...on the telephone?	70.8%	15.8%	5.9%	3.5%	1.5%	0.5%	2.0%	202	1.58

Respondents' reported hours of media use indicate Internet users consume the most time: the highest hours use interval was the most commonly selected, and the pattern depicts a trend of fewer users in the lower-hours intervals. The converse is true for the other three media included in the survey: the highest number of hours use were reported by the fewest number of respondents, and the lowest number of hours were reported by the highest number of respondents.

Television and radio show an unambiguous negative correlation with the Internet in the hours spent with these media and the relative sizes of user populations. These data provide preliminary evidence that television's use patterns are more comparable to "old media" than new. Graph 1 below depicts these relationships, beginning with six to ten hours use interval to improve the transparency of the relationships due to the high reporting of radio use in the zero to five hours interval (over fifty-five percent).

Graph 1. Hours of use: television, radio, and Internet

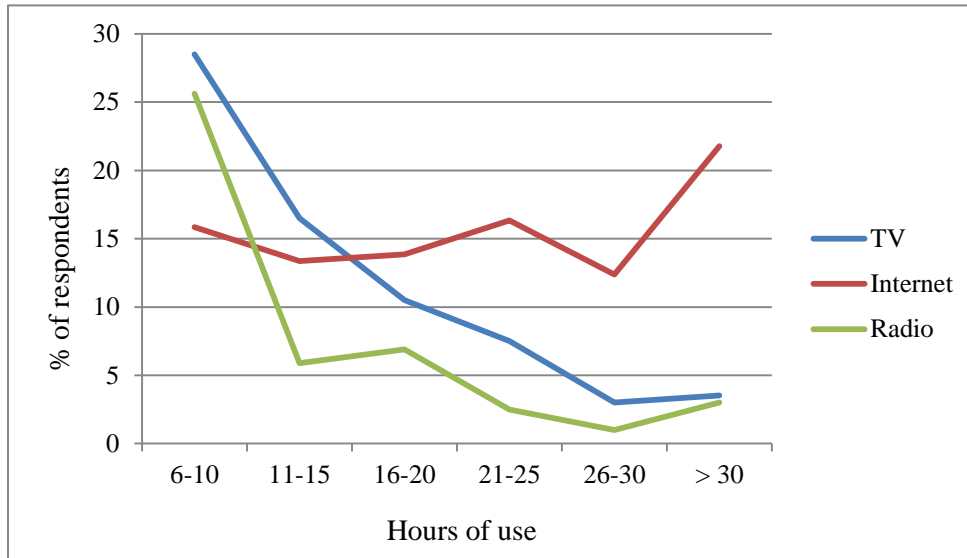


Table 4. Media uses and gratifications

	Radio	TV	Internet	Telephone	n
Entertainment	63%	90%	87%	27%	191
Learning	24%	49%	98%	9%	189
Relaxation	52%	80%	70%	23%	181
Companionship	8%	26%	58%	78%	161
Habit	31%	65%	81%	29%	167
Escape	30%	70%	74%	17%	164
Interpersonal communication	2%	5%	77%	90%	176
Distributing your own content	2%	4%	97%	34%	145
Distributing others' content	4%	8%	97%	21%	131
Arousal	16%	41%	84%	21%	82
Pastime	38%	75%	81%	26%	142
Other (please specify)	14%	14%	71%	7%	14
Other (please specify)	0%	0%	100%	50%	4

Respondents indicated more Internet uses and gratifications than other media in ten of thirteen categories listed, including two “other” categories. Ninety-eight percent used

it for learning, and ninety-seven percent of respondents reported distributing content over the Internet. Its least selected use was for companionship at fifty-eight percent.

Television's most commonly-identified use was entertainment (90%). Less than half of respondents reported using TV for learning. Additional analyses of these results are discussed in Part VII., below.

## PART IV. DISCUSSION

The historical case study presents certain facts about the long-standing vision for a two-way, or interactive, television system (iTV). Nearly a century and a half ago, visionaries proposed what we now call iTV: du Maurier's 1878 illustration of Edison's concept being arguably the most powerful. By any modern standard, this illustration envisions the highest level of interaction imaginable even in today's most optimistic view of what iTV could be. But Edison was not alone. In 1931, Ted Husing suggested "someday, TV would be 'two-way', with viewers able to 'talk back'."<sup>180</sup>

The literature review provides more current evidence of an interest in the realization of iTV systems. In 1988, Michael J. Freeman, President of ACTV Inc., planned to give his viewers "the power to not just change the channel but what's on the screen."<sup>181</sup> Others went beyond vision, turning their iTV ideas into action. Warner Cable experimented with QUBE, a rich "interactive cable system that Warner Cable" installed in Columbus, Ohio in 1979 that let viewers sit in on a classroom discussion and included home security features. QUBE's interactive TV programming permitted one-to-one, one-to-many, and many-to-one communication between human beings using the home television set, a

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<sup>180</sup> Ritchie, 23

<sup>181</sup> Port et al, 100

relatively high level of interactivity that invited viewers to help create content in real-time.

In 1990, Canadian media company Videotron tested a technology that would allow viewers to select the angles from which to view hockey games.<sup>182</sup> U.S. Cablevision tested a similar technology in the states. Tele-Communications Inc. and Bell Atlantic Corp. planned a merger in 1995 “to combine the promise of television, telecommunications and computers” that never came about.<sup>183</sup> In 2000, Microsoft Corporation stumbled in its efforts to deliver iTV, buying startup company WebTV in doing so.<sup>184</sup> AOL planned to launch a STB that would deliver email and instant messaging to a connected television in June 2000.<sup>185</sup> Telecom giants Cablevision, GTE, AT&T, Pacific Telesis, Ameritech, Nynex, Bell Atlantic, and Time Warner all had plans to bring iTV into the U.S. home: in the majority of cases, decades ago.<sup>186</sup>

If one considers viewing “on demand,” “time-shifted,” or “asynchronous,” movies and programs – or the occasional posting of a viewer’s tweet on the television screen as interactive – then certainly many of these companies have succeeded. Indeed, selecting asynchronous movies and television programs was one of the most common definitions of iTV among focus group participants in this study. But other focus group members offered visions more like that of Edison’s telephonoscope than incremental improvements

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<sup>182</sup> Angus, 20

<sup>183</sup> Kelley, S12

<sup>184</sup> Yang, 90

<sup>185</sup> Ibid.

<sup>186</sup> Kelley, S12



in the same sets of features available using a 1980s VCR and shopping at the video rental store: both of which provide recording capabilities and asynchronous programming with the ability to pause, fast-forward, and rewind. As noted above, other focus group participants offered definitions such as, "...interactive TV would mean ways of actually interacting with the TV actively, not passively: engaged in what is taking place;" "You can request something, or help make something happen on the screen like determine the ending of a show, or request something and the TV will respond with something you've asked for;" "Between entities, either another person or a machine. I do something, and it does something;" "To me, it implies some level of control. I can do something and make something happen;" and "Give and take."

One should not conclude that the lack of a common definition for "interactive" – nor that any technology issue – is responsible for the blasé reception iTV is receiving from the U.S. viewing public. An understanding of common findings in the field of U&G research developed over decades may better serve those interested in understanding iTV's cool reception. U&G researchers of the mid 1950s through the early 1980s appear to have been more active in their searches to understand media users' motivation and rewards than during the present era. While the level of U&G research activity appears to have waned somewhat, its long-standing common findings provide material insight into this case.

Multiple U&G researchers' works point to a relatively small set of common findings. They include learning, passing time/habit, companionship, escape, arousal and

relaxation;<sup>187</sup> pastime;<sup>188, 189</sup> loneliness;<sup>190</sup> habit, relaxation, companionship, passing time, learning, arousal, and escape;<sup>191</sup> and relaxing, learning about things, communication utility, forgetting, passing time, companionship, and entertainment.<sup>192</sup>

The pilot survey results from Table 4 above provide further insight into these motivations and others less-often identified in U&G research. Survey data indicate entertainment remains television's most common gratification (90% of respondents), followed by relaxation (80%), pastime (75%) escape (70%), and habit (65%), each of which is separated by no more than ten percent. The next most common gratifications were learning (49%) and arousal (41%). Twenty-six percent of respondents selected companionship as a gratification from television viewing; all other categories received single-digit percentage responses.

Comparatively, Internet gratifications received the highest percentage responses across nearly all categories. Ninety-eight percent of all respondents reported using the Internet for learning and ninety-seven percent for distributing content: both their own and others'. The next highest identified use was entertainment (87%), followed by arousal (84%), habit (81%) and pastime (75%). The lowest ranked gratification of Internet use was companionship (58%).

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<sup>187</sup> Rubin, 49

<sup>188</sup> Katz et al, 1973, 510-511, 513

<sup>189</sup> Bogart, 47,48

<sup>190</sup> Chory-Assad & Yanen, 181-202

<sup>191</sup> McQuail et al, 438-454

<sup>192</sup> Palmgreen and Rayburn, 155-179

The percent that used the Internet for learning (98%) was double that of television learners (49%). Similarly, more than twice the percentage of respondents identified the Internet as a source of companionship compared with television (58% to 26%). Four percent of respondents identified distributing their own content via television, while ninety-seven percent selected the Internet for this purpose. Similarly, just five percent identified the television as a source of interpersonal communication while seventy-seven percent identified the Internet for this purpose.

Some significant exceptions exist in regard to home television sets' passive consumption uses, however. In addition to gaming, education, business, and healthcare sectors have all employed high-level interactive television using the same devices that are plugged into standard wall outlets in more than 100 million US HHs: further evidence contradicting the argument that a lack of interest in iTV is due to technological shortcomings. The same home television set described in the introduction section of this paper is now used – and has long been used – for highest-level interactive purposes over the past number of decades. Many of these highly interactive uses are found in large numbers and have been around for some time.

## **Gaming**

The syllabus for a Tufts University computer science course lists 26 separate game genres. McCann outlines nine of them including Massively Multiplayer Online Role-Playing Games (MMORPGs) citing World of Warcraft that McCann reported as holding more than 60 percent of the MMORPG market in 2009.<sup>193</sup> He notes that the game can

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<sup>193</sup> Shawn McCann, "Game Genres Demystified," *Library Journal* (January 2009): 56 *Academic Search Premier*, EBSCOhost (accessed March 24, 2013).

involve as many as hundreds of players participating in real time. It uses a standard home television set for the display and sound.

“Bigger, better, and far more immersive” is how Heaven describes the launches of Nintendo’s Wii U, Microsoft’s Xbox 360, and Sony’s PS3 for Christmas season 2013: one he predicts will be “a huge year for console gaming.”<sup>194</sup> McCracken reports on Wii U’s introduction as well, noting that sales for the Wii peaked in 2009 when Nintendo sold 26 million Wii game consoles<sup>195</sup> that require televisions set for picture and sound. In 1993, the video game industry’s sales exceeded \$5.3 billion. In addition to the expected newcomers into the field at the time, Elmer-DeWitt<sup>196</sup> references the advent of Pong, Pac-Man, and Atari games, all of which displayed sight and sound using a standard home television as early as the 1970s. On gaming, Richard Corliss, writing for *Time* magazine, reports that Harry Potter, 2011’s box office champion, “grossed \$381 million during its domestic run,” less than video game Call of Duty: Modern Warfare 3 made on its first day of sales.<sup>197</sup>

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<sup>194</sup> Douglas Heaven, "Get Into the Game," New Scientist Magazine 22 December 2012, 22-23. *Academic Search Premier*, EBSCOhost (accessed March 24, 2013).

<sup>195</sup> Harry McCracken, "Play Hard." Time Magazine, 26 November 2012, 56-57. *Academic Search Premier*, EBSCOhost (accessed March 24, 2013).

<sup>196</sup> Philip Elmer-Dewitt and John F. Dickerson. "The amazing video game boom." (Cover story) Time Magazine, 27 September 1993, 66. *Academic Search Premier*, EBSCOhost (accessed March 24, 2013).

<sup>197</sup> Richard Corliss, "Mission Impossible." Time Magazine, 16 January 2012, 61 *Academic Search Premier*, EBSCOhost (accessed February 23, 2013).

## Education

A second exception is education. Sebastian, Egan, & Mayhew<sup>198</sup> report on the evolution of a 1984 “EDNET” distance education program at the University of Utah, where in the first year, 20 students needing certification traveled to remote campus locations and became virtual participants in the classroom. They could watch the instructor and students, and participate in the discussions.

Donorfio and, Healy<sup>199</sup> describe a transition from traditional teaching methods to those recommended for use in iTV learning. Citing Moore and Kearsley (1996), they estimate that over four million Americans were engaged in distance learning more than fifteen years ago, typically using satellite television, cable television, and web-based computer programs, among others. They distinguish the iTV technologies from others because it enables “real-time” interactivity using two or more sites. Omatseye<sup>200</sup> also explores iTV in education, focusing a good deal of attention on the Kentucky Educational Television experiment that went live in 1995. He reports, “For the first time, instructors in Richmond could see and hear the students at the other three sites. In a like manner, students at the far sites could see and hear their instructor.”

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<sup>198</sup> Joan P. Sebastian; Winston M. Egan; & Jack C. Mayhew. “From Two-way Television to the Internet: The Evolution of a Rural Distance Education Program,” Rural Special Education Quarterly. (Summer 2009): 5-8.

<sup>199</sup> Laura K. Donorfio and Catherine Healy. “Teaching an Interactive Television Course on Adulthood and Aging: Making it Happen,” Educational Gerontology (June 2008): 531-549.

<sup>200</sup> Jim Nesin Omatseye, “Teaching through tele-conferencing: Some curriculum challenges,” College Student Journal (September 1999): 346-353.

Hupont et al explore and discuss learning methods using Interactive Digital Television (IDTV)<sup>201</sup> paying particular attention to opportunities for people to use the technology to learn at home: differentiating their work from the three studies cited immediately above that required students to travel to an iTV technology-enabled location. They claim prior home uses of interactive learning have been more about educational entertainment, or “edutainment,” as they refer to it. They address decidedly pedagogical and technological uses to assess students’ emotional reactions using a tool named T-EDUCO.

### **Business**

Businesses have used iTV technology for decades, mostly in the form of teleconferencing. de Lind van Wijngaarden et al propose a “novel videoconferencing architecture”<sup>202</sup> arguing that the benefits of face-to-face communication using television technology improve persuasiveness and trust. Video, they say, permits remote parties to interpret the combination of facial expression and tone of voice better than other remote conferencing technologies: the conference call in particular. They contrast high-end systems that rely on equipment installed in dedicated conference rooms with low-end systems that operate using Internet webcams, projectors and computer screens. They differentiate their proposed system from existing ones claiming it’s lower-cost, easier to

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<sup>201</sup> Isabelle Hupont; David Abadia; Sandra Baldassarri; Eva Cerezo; and Rafael Del-Hoyo. “T-EDUCO: A T-learning Tutoring Tool that Cares” International Journal on Artificial Intelligence Tools, (August 2011): 639-661.

<sup>202</sup> Edward Sutter, et al. "Multi-stream video conferencing over a peer-to-peer network." Bell Labs Technical Journal 15 (September 2010): 229-243. *Academic Search Premier*, EBSCOhost (accessed March 24, 2013).

use, and portable. While most teleconferencing systems today use computer monitors to display the video images, early systems relied on standard television sets.

de Freitas and Neumann review the literature on Synchronous Audiographic Conferencing, aka videoconferencing. Their analysis includes an illustration of a “Cyclops study centre trolley” depicting a common 1984 configuration of a teleconferencing system that includes a trolley, two traditional telephones, one connected to a loudspeaker, a Cyclops box, distribution boards, and a “TV monitor.”<sup>203</sup>

Nefsis.com, a Brother company, provides a rich summary of the timeline of the development of videoconferencing, noting that its “grand introduction” was during the 1964 World’s Fair in New York.<sup>204</sup> “Along with the invention of the television came the ability to conduct simple analog conferencing,” according to the authors. The timeline identifies its commercialization as occurring in the 1980s. The 1982 Compression Labs model cost \$250,000 for hardware setup and an additional \$1,000 per hour of use. Just four years later, PictureTel’s 1986 model reduced the prices to \$80,000 for the hardware and \$100 per hour for using the telecom system. By 2003, when high-speed internet was broadly available and higher-resolution picture technologies continued to decline in price, teleconferencing became far more accessible. The website’s images display both computer monitors and large-screen television sets depicting the state of the technology today.

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<sup>203</sup> Sara de Freitas and Tim Neumann. “Pedagogic strategies supporting the use of Synchronous Audiographic Conferencing: A review of literature,” British Journal of Educational Technology (November 2009): 980-998.

<sup>204</sup> Nefsis.com. “Timeline” <http://www.nefsis.com/Best-Video-Conferencing-Software/video-conferencing-history.html> accessed Mar 24, 2013.

## Healthcare

Finally, the healthcare sector has also employed interactive television, commonly using the standard home television set as the means to capture, transmit, receive and display two-way feeds from the hospital room to healthcare workers at a distance. May et al examine the rapidly-growing tele-health phenomenon.<sup>205</sup> They report on telemonitoring of chronic diseases, telepsychiatry, and telecardiology using two-way television technology.

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<sup>205</sup> Carl R. May, et al. "Future patients? Telehealthcare, roles and responsibilities." Health & Social Care In The Community (January 2008): 86-95 *Academic Search Premier*, EBSCOhost (accessed March 24, 2013).



## PART V. FINDINGS

### **Technology**

There is no agreed-upon standard for what constitutes “interactive television.” The historical case study uncovered multiple references to technology standards often involving the National Television Standards Committee (NTSC). In 1950, the NTSC accepted RCA’s monochrome television system, setting a standard guiding all manufacturers on the development of a standard technology for others to follow. Even though the FCC chose CBS’ technology, NTSC nonetheless weighed in on the importance of a standard, likely helping prompt a decision by the governmental authority charged with such responsibilities.<sup>206</sup> The NTSC has a long history of facilitating effective collaboration on television technologies for the benefit of the public. But it has not demonstrated any efforts to weigh in on common platforms or definitions for iTV.

Two-way interactive television has been in use for decades, notably in the form of distance education, teleconferencing, gaming, and distance healthcare. TV gaming systems date back to the 1970s and have permitted family members and friends to connect an STB to the home television and interact using the TV’s imaging and sound systems. The first games, Pong and Pac-Man, for instance, allowed two to four players to compete against each other or against the game’s computer. A long list of gaming

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<sup>206</sup> Magoun, 103

technologies using home televisions for sight and sound followed: Atari, Intellivision, Odyssey, and ColecoVision, for instance. More recently, sophisticated gaming systems use the Internet to enable hundreds of players from around the globe to interact with each other in real-time. The Big Three today are Sony's PlayStation, Microsoft's Xbox, and Nintendo's Wii. All three have introduced upgraded models in the recent past. All of them employ an STB and require a traditional home television set for sight and sound.

Today's televisions include multiple input and output jacks, often giving the television user the ability to connect to the TV using optical, digital, and analog technologies. One of those sets is TiVo's, a name once synonymous with DVR technology. TiVo introduced a new STB three years ago with the goal of becoming the "Google of TV," a vision so far unfulfilled.<sup>207</sup>

### **Uses and gratifications**

The pilot survey reinforces long-standing common findings among researchers in the U&G field. It found entertainment, relaxation, pastime, escape, and habit to be the top five selected gratifications from television use. Learning was sixth, with just less than half of all respondents identifying television's uses to include learning. The least favored uses were distributing content and interpersonal communication. Focus group participants similarly discussed television's use mostly for entertainment and companionship, often describing the latter in terms of multitasking: watching television while exercising or working around the house, for instance. Little evidence from the focus groups suggested a demand for interactive features on U.S. households' television sets.

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<sup>207</sup> Nate Dimeo, "TiVo's Goal with New DVR: Become the Google of TV," National Public Radio. April 2010. <http://www.npr.org/templates/story/story.php?storyId=125350647>, accessed Mar 24, 2013.

Analysis of the pilot survey data designed to explore whether participants younger than 30 use media differently than older populations revealed preliminary evidence that significant differences may exist in regard to television viewing. The implications are addressed and quantified in Table 5, below.

### **Research questions**

*Q.1:* Why, amid a technology revolution that continues to provide new technologies that permit high levels of interactivity using standard home television sets, are home televisions largely absent from mediation of higher-level interactive communication?

*A1:* Evidence from U&G research, focus groups, and the pilot survey all suggest that home television users *en masse* prefer to use their televisions for the same purposes they did a half-century ago. This finding is supported by the ready availability of Smart TVs, and STBs, for instance. While they enable the television technology to perform higher-level interactive features in the home, few U.S. households members demand interactive features on their televisions beyond asynchronous programming and gaming.

*Q.2:* How well do common findings in historical U&G research help us understand people's motivations for and gratifications derived from television use today?

*A2:* Common findings in historical U&G research are strongly confirmed using the research methods employed here: a case study, a literature review of U&G findings and technology, a pilot survey, and focus groups. An analysis of media uses by age groups, however, suggests people 30 years of age and younger may use television differently than those over 30. Some of the implications are examined in greater detail in Part VII, below.

*Q.3:* Are common findings in historical U&G research sufficient to generalize upon or to challenge existing theoretical bases in the field regarding embrace of iTV? If so, how?

*A3:* Yes, mostly. Findings of this study support the theoretical proposition that U.S. home television viewers are likely to continue to use television for the same purposes and to derive the same gratifications they received from it decades ago: entertainment, relaxation, pastime, and habit, for instance. This work, however, raises questions about whether those under 30 years of age may use television – and other media – differently in some measurable ways not yet quantified.

## PART VI. CONCLUSIONS

Scant evidence exists to support the theory that the U.S. home television set is now, or will soon become, a preferred medium for interactivity at a level much beyond asynchronous program consumption. Pilot survey results reinforced the theory that Americans prefer to use the television for passive purposes in large measures. Focus group participants' comments further reinforced the proposition. One focus group respondent in the under-30 age group noted that he owned a Skype-enabled "Smart TV." When asked how much he used it, he responded, "I never use that [the TV]. It's just easier to use my phone or computer."

The historical case study reveals multiple instances of collaboration among competing television manufacturers and their proprietary technologies: sometimes voluntarily, sometimes under rules imposed by the FCC. The Radio Television Manufacturers Association, for example, convened panels to test and select a standard for color television technologies under the aegis of NTSC's standing thirteen study panels. It resulted in selection of the technologies deemed most effective at the task, leading to manufacturers agreeing to pursue the same technologies together.<sup>208</sup> Today, it would well serve the television industry – and even more importantly the consuming public – for NTSC to similarly address the definition of what is, and what is not, interactive TV.

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<sup>208</sup> Ibid., 106

Given the many features that presently constitute iTV, it might be advised that a definition not be discreet, but categorical in description. For instance, a device's label could readily identify which interactive services it enables. Examples might include asynchronous programming, face-to-face communication, and Internet access. Whatever categories might be selected, the device's label could include a check mark for all interactive services it enables.

Television viewers are referred to collectively as an audience, a term derived from the theater. Bogart describes both theater and television viewers as unable to provide feedback to the performers.<sup>209</sup> He found remarkable consistency in those viewing dramatic, quiz, comedy, mystery and audience participation programming, noting that television audiences routinely view programs for passing time, a decidedly passive engagement with the television set. Furthering the comparison between theater and television audiences, many home television sets are connected to home theater systems – many with Surround Sound – capable of replicating to a significant degree, the rich aural experience of a movie theater or sports arena. Some newer expensive homes even include a theater room, complete with a large screen and rows of theater seats on a rising floor. Conversely, no evidence was discovered in this study that suggests home television users construct news rooms with multiple televisions to enhance their news-viewing experiences; nor do they construct interactive television classrooms in their homes for TV learning.

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<sup>209</sup> Bogart, 47-48

Today's television environment is the most chaotic since the beginning of WWII when competing technologies began to converge around significant research funding from the War Department. The first few decades after the war witnessed the greatest boom in television penetration into the US HH. Much has been written elsewhere about the familial and societal impacts of the television's entrance into the home. What matters here is its rapid growth following the war: a trend that continued unabated for more than sixty years as measured by (1) the number of US TV HHs, (2) the penetration of TV into US HHs, and (3) the number of sets in service. But over the past few years, the viewing market – once nearly the sole domain of ABC, CBS, and NBC – has been materially diluted by the introduction of literally hundreds of channel options. Not surprisingly, Americans are watching more TV now than ever.<sup>210</sup> But they're moving more and more to MICDs in the process. While the percentages doing so are relatively small, growth rates in this category are spectacular. In 2009, viewers spent an average of just over three hours per month watching television on MICDs and computers. They spent over 141 hours watching on their home televisions. But the one-year growth rate of hours watched on the home television was 1.5 percent. Watching video on the Internet grew at 45.5% over the same period.<sup>211</sup> This phenomenon has led Nielsen to redefine television viewing,

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<sup>210</sup> The Nielsen Company. Three Screen Report: Media Consumption and Multi-tasking Continue to Increase Across TV, Internet, and Mobile (New York: The Nielsen Company, 2009). <http://www.nielsen.com/us/en/newswire/2009/three-screen-report-media-consumption-and-multi-tasking-continue-to-increase.html>

<sup>211</sup> Ibid.

now in the form of a “Three Screen Report” capturing viewers who watch television on their home TV sets, their computers, and their MICDs.<sup>212</sup>

Much like the earliest days of television, a diffusion of innovation is penetrating into the new realms of media devices. Today, inventors and entrepreneurs are again pressing the limits of technology and law attempting to woo viewers – and advertisers – to their new platforms. Nielsen’s most current report notes, “Tablets remain a relatively new device (sic) in the hands of consumers,” yet the adoption rate is incredibly brisk. Within a two-year period, almost one fifth of U.S. homes became owners of tablets and there is no sign of this slowing.<sup>213</sup>

National Public Radio ran an “All Tech Considered” series on new media that included, “Amid Lawsuits, Aereo Brings Broadcast TV to the Internet.”<sup>214</sup> Aereo allows subscribers the ability to watch TV using Internet Protocol (IP) technology. The company picks up broadcast signals from the public airwaves and delivers them to subscribers for eight dollars per month via an IP connection. Since it can only receive broadcast signals, it is not capable of rebroadcasting cable-only channels such as CNN or ESPN. But the package is a lower-cost service compared with basic cable subscriptions offering similar service levels. A subscriber reported picking up 31 stations in the New York City market.

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<sup>212</sup> The Nielsen Company. Viewership on the Rise as More Video Content Spans All Three screens (New York: The Nielsen Company, 2009). [http://www.nielsen.com/content/dam/corporate/us/en/newswire/uploads/2009/09/ThreeScreenReport\\_US\\_2\\_Q09REV.pdf](http://www.nielsen.com/content/dam/corporate/us/en/newswire/uploads/2009/09/ThreeScreenReport_US_2_Q09REV.pdf)

<sup>213</sup> The Nielsen Company. The Cross-Platform Report: Quarter 2, 2012 – US (New York: The Nielsen Company, 2012), 3. <http://www.nielsen.com/content/dam/corporate/us/en/reports-downloads/2012-Reports/Nielsen-Cross-Platform-Report-Q2-2012-final.pdf>

<sup>214</sup> National Public Radio. “Amid Lawsuits, Aereo Brings Broadcast TV To the Internet” February 21, 2013. <http://www.npr.org/blogs/alltechconsidered/2013/02/21/172532486/amid-lawsuits-aereo-brings-broadcast-tv-to-the-internet>



Multiple lawsuits have been filed challenging Aereo’s legal rights to rebroadcast signals, but, “So far, they have not prevailed.”

Traditional television is under attack from an array of new upstart entrants seeking to convert viewers to their latest anomalous offerings: mounting serious challenges to the half century-plus home television paradigm. The anomalies can no longer be dismissed as curiosities or simple nuisances. They threaten the very infrastructure on which television viewing depends, including at its core, the ability for former passive audience members to become content producers and distributors using devices that commonly fit into their pockets.

While a decline of two percent in TV HHs seems insignificant on the surface, it amounts to a nominal decline of 1.2 million television households, roughly equal in number to losing every TV HH in the Portland, Oregon or the St. Louis, Missouri television market.<sup>215</sup>

Traditional TV producers and distributors have aggressively attempted to deliver content on multiple platforms and to engage viewers by such means as encouraging them to tweet pithy remarks on program topics: some of which will make it “on air.” But this type of engagement is insufficient to overcome the significant body of evidence pointing to traditional television as a paradigm under attack, notably its shrinking numbers and percentage in terms of U.S HHs, viewers’ migration to other screens and the ease of consuming video content almost anywhere and almost any time on mobile devices. It

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<sup>215</sup> The Nielsen Company. “Local Television Market Universe Estimates: Comparisons of 2010-11 and 2011-12 Market Ranks”, 2011. <http://www.nielsen.com/content/dam/corporate/us/en/public%20factsheets/tv/nielsen-2012-local-DMA-TV-penetration.pdf>

appears unlikely that traditional television interests will succeed this time in their attempts to introduce iTV as a counter-measure to reverse these trends. MICDs simply offer a more compelling set of features for a large set of the population. The power of their appeal is evidenced in part by their continued rapid growth, not unlike the post-WWII growth years of television.

Yin describes appropriate and inappropriate generalization of research findings differentiated by qualitative and quantitative methods:

“... the case study, like the experiment, does not represent a ‘sample,’ and in doing a case study, your goal will be to expand and generalize theories (analytical generalization) and not to enumerate frequencies (statistical generalization). Or as three notable social scientists describe in their *single* case study done years ago, the goal is to do a ‘generalizing’ and not a ‘particularizing’ analysis (Lipset, Trow, & Coleman, 1956, pp. 419-420).”<sup>216</sup>

Hence, in addition to the pilot survey, the qualitative research methods employed here can be used to generalize on U&G research and theoretical development. Based on the weight of evidence, one can conclude that findings from the literature review, the historical case study, and the focus groups all support long-standing U&G findings regarding how Americans use television at home. They support theories that posit Americans still use their home television for primarily passive purposes, such as entertainment, relaxation, and pastime: not for gratifications derived from interaction. And they appear to like it that way.

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<sup>216</sup> Robert K. Yin, “Case Study Research: Design and Methods, Fourth Edition”, (Thousand Oaks, California: Sage Publications, Inc., 2009): 15.

PART VII. LIMITATIONS AND FUTURE RESEARCH

Certain conclusions that may be inferred herein are subject to significant limitations. In particular, those derived from the pilot survey should not be generalized to the population at large. The survey sample population represents a significantly younger mix than the adult population at-large. It contains a higher percentage of females, and is likely more highly educated on average. At the same time, the pilot survey reveals some findings worthy of further exploration. For instance, observations gleaned from Tables 3 and 4 suggest younger survey participants may differ in viewing habits than those over 30 years of age.

To test this observation, the researcher performed a series of crosstabs to explore for significant differences between the youngest-defined age group and all the others combined. This preliminary inquiry discovered five areas in which age appears to matter in media uses and gratifications.

Table 5. Correlations: Age and media uses

Statistic	Media Uses				
	Entertainment	Relaxation	Habit	Escape	Pastime
Chi square	12.32	11.56	29.46	14.54	8.37
Degrees of Freedom	3	3	3	3	3
p-value	0.01	0.01	0.00	0.00	0.04

Footnote: Media uses and gratifications above are all those with a chi square value >8 not identified by Qualtrics as possibly inaccurate (frequency less than 5) and with a p-value .05 and below

The under-30 age group, also commonly referred to as millennials, provides further opportunities for media research. It was the first generation whose parents would have handed them cellular phones before they were old enough to drive. They used online libraries to produce their high school papers using Microsoft Word at their home desks. Their perspectives may serve as a road map to future media uses: interactive ones in particular. What percent of millennial households contain a TV? The Pilot survey provides no guidance here whatsoever. What video content do they consume and how do they receive it? How do they want to receive it? These questions appear to be largely unanswered and yet critically important in the understanding of trends in media use today.

Focus group participants in this study also hinted at differences between the generations in their media choices. Multiple participants – some under thirty and some over thirty – talked about themselves or their millennial children having a television, but only using it to play games or watch movies using a DVD player or Netflix. Is this true to any measurable degree? If so, is it due to the expense of satellite, cable, and IP television service? Or is it because they simply don't have much interest in traditional television? Or is it something else?

Next, members of both focus groups age thirty and higher mentioned nostalgia as a separate motivation for television viewing. Nostalgia has only rarely been identified as a television gratification finding. Yet these focus group participants spoke at some length about it and shared channel numbers on both broadcast and cable systems that highlighted nostalgic programming. *The Andy Griffith Show*, *Leave it to Beaver*, and *Gunsmoke* were commonly referenced in the discussions. One might theorize that this phenomenon is simply an inevitability of an aging population: the baby-boomers being

perhaps the first generation to retire having grown up with television since their earliest memories. U&G researchers might discover alternative or additional motivations for the apparent popularity of nostalgic programming, and could explore such questions as the approximate age at which nostalgic programs have appeal to broad audiences.

Finally, this work is prepared amid a backdrop of high unemployment and slow economic growth, a period that has come to be known as the “Great Recession.” Brian Stelter of *The New York Times* (May 3, 2011) reports that Nielsen similarly cited “a prolonged recession” as a cause of a decline in the percentage of TV HHS in 1992. One might reasonably conclude that the current recession plays an important role in the numbers, trends, percentages and penetration of television into US HHs today.

APPENDIX

Focus Group Input

Group 1	Over 30				Coding	
					Categories	
Question	1	Approximately how many hours per week do you spend watching television?			A	0 to 5
					B	6 to 10
Category		Participant			C	11 to 15
<u>Code</u>		<u>ID</u>	<u>Responses</u>		D	16 to 20
G		1.4	50. In the winter, quite a bit less in the summer.		E	21 to 25
			It's background noise a lot of times		F	26 to 30
B		1.6	Probably 10 during the week in the winter		G	>30
			Varies on the season			
F		1.1	About 30			
G		1.5	About 50. It's background noise a lot of times			
			Varies on the season			

			Coding Categories	
Group 2		Over 30 years of age		
Question	1	Approximately how many hours per week do you spend watching television?	A	0 to 5
			B	6 to 10
			C	11 to 15
Category	Participant		D	16 to 20
<u>Code</u>	<u>ID</u>	<u>Responses</u>	E	21 to 25
C	2.2	I probably watch 12 to 14	F	26 to 30
	2.4	Does that include movies, TV, Netflixes?	G	>30
	2.5	That's not just when it's on while you're doing things? That's when you're sitting down watching i		
	Mod	Yes		
	2.4	Background TV counts		
		It does? My TV's on a lot, but I can't say I'm watching it		
	Mod	For purposes here, let's say you're relatively stationary and paying attention		
A	2.4	Two to three		
B	2.5	Seven to ten for me		
C	2.3	I'd say ten to twelve		
C	2.6	Twelve to fifteen		
C	2.1	Twelve to fifteen		



Group 3	Under 30				Coding	
					Categories	
Question	1	Approximately how many hours per week do you spend watching television?			A	0 to 5
					B	6 to 10
Category		Participant			C	11 to 15
<u>Code</u>		<u>ID</u>		<u>Responses</u>	D	16 to 20
B		3.1		10 hrs/week	E	21 to 25
E		3.3		21 hrs/week	F	26 to 30
B		3.2		6 hrs/week	G	>30
E		3.4		15-20 hrs/week		
D		3.1		20 more hours in TV as background		
		3.4		3-5 more over the weekend (TV is on but not fully engaged watching it)		
		3.3		I cannot concentrate when I am watching TV so I have to remove myself from television if I'm going to be doing something else.		
				During the commercials I sometimes look at the news on my phone or facebook or twitter		
		3.3		we normally have it on during dinner time so we can hear it from the dining table		
		3.3		most of the time I have my phone with me so I can glance at it during the commercials		

Group 1	Over 30				
					Coding
Question 2:	What programs do you like to watch?			A	News and Weather
				B	Entertainment
Category	Participant			C	Human Interest
<u>Code</u>	<u>ID</u>	<u>Responses</u>		D	Game Shows
A,C	1.2	Like to start day watching Good Morning America		E	Movies
A		We always watch the evening news		F	Sports
F		Bassketball and football games		G	Do-it- Yourself
G,H		HGTV - Househunters		H	Educational
B,C		Antiques Road Show			
B		Dancing with the Stars			
		Not a lot of serial TV programs we like to watch ever			
B	1.3	St. Elsewhere, some cop shows in the past every story possible already done - Bob Newhart, Didn't watch JSeinfeld, but now do			
C,H	1.4	History channels, disc			
		one or two reality, weather channel, History, Discovery Older Movies			
A,B	1.5	Newer movies. Only series is Castle (?), Weather Channel, mustic videos			
		News at lunch time and then typically movies. We have Netflix and not a lot of TV stations			

			Coding
Group 2	Over 30		A News and Weather
			B Entertainment
Question 2: What programs do you like to watch?			C Game Shows
			D Movies
Category	Participant		E Weather
<u>Code</u>	<u>ID</u>	<u>Responses</u>	F Sports
B	2.1	I like Entertainment Tonight	G >30
C	2.2	Jeopardy. I just like being able to say the answer and be happy that I knew a lot of them. News also.	
	2.6	Political commentary.	
		I'll usually multi-task. I usually have my computer on my lap. Sometimes I watch it, sometimes I don't.	
	Moderator:	Do you have just one TV in your house?	
		No. I have four.	
	2.4	I have two	
	2.2	Two	
	2.1	Two	
	2.6	Two	
D	2.4	When I watch TV, it's generally Netflixes. Generally, I watch most of my TV during my lunch hour (away)	
		My boys mostly control the TV in my house and that's fine with me because I think most of it is rubbish. I do miss not being able to see the news. And I could win that fight if I wanted to.	
	2.5	What do you watch at noon? A series?	
	2.4	No, something on Netflixes like a movie, or any TV series I want to get in. Sometimes I just jump around.	
	Moderator:	You used the word "rubbish". Would you expand on that a little bit? What makes something rubbish?	
	2.4	I guess it's just sub-par. Most of it's junk.	
	2.3	Yeah, I would agree. Just watching what my kids are watching, like Jersey Shore, the Jerry Springers and the...	
	2.4	Oh, Daytime TV is really bad.	

				Coding	
Group 3	Under 30			A	News and Weather
				B	Entertainment
Question	2	What programs do you like to watch?		C	Human Interest
				D	Game Shows
Category	Participant			E	Movies
<u>Code</u>	<u>ID</u>	<u>Responses</u>		F	Sports
B	3.3	I am a big Bravo watcher, I watch a lot of Housewives series		G	Do-it-Yourself
B	3.4	I like a lot of the NBC comedies, 30 Rock is one of my favorite shows, and the Office, I've been watching Cops for a long time too, and The Simpsons		H	Educational
H,C	3.1	When I am by myself I only watch Smithsonian Channel and Animal Planet			

			Coding Categories
Group 1	Over 30		A
Question	2A	What appeals to you about those programs?	B
Category	Participant		C
<u>Code</u>	<u>ID</u>	<u>Responses</u>	D
B	1.5	Entertainment value	E
A	1.1	I'm a news junkie. Can't help punishing myself watching reality news	F
A		When I don't want to punish myself I watch MSNBC	G
C		I do like to watch brainless stuff once in a while	H
		I like to stay in touch. I have an interest in politics and I like to keep informed	
		But it's been very difficult to watch recently	
H		And I like a lot of English stuff, because it's nostalgia	
A	1.2	I agree with her, I like to know what's going on on a day-to-day basis around the world	
		That's one of the reasons I enjoy GMA: news, weather, human interest Stories	
D	1.4	I like to watch HGTV and get all those ideas for home improvement. It's motivated me to do some things in the house and the garden.	
D	1.2	I learned a lot about cooking watching the Food Channel. Things I was doing wrong.	
B		Yesterday, I watched a whole Pat Metheny concert and when that was over, I watched Paladia on Comcast has concerts. Has glorious surround sound on it.	
	1.4	I don't like to watch the news; it's all negative stuff	
B		I'd rather watch old classical movies	
D		I like the history stuff. I like to learn more about history	
A		I prefer to hear the headlines; I get enough of that. I can make a decision on my own if I like it or not, because I don't like all the commentary everybody has	
		It's all too political for me	

FOCUS GROUP 1: Q2A (cont'd)

		1.5	And typically swayed as well
		1.4	When I get up in the morning, I open the newspaper. I don't turn the TV on
A			I read the headlines. If it's severe weather, I'll turn the TV on and watch the weather
A			And when I'm at work, I've got the internet so I can see any headline news
B			then in the evening, it's basically entertainment.
		1.2	When we were working, that's how we did it. We read the newspaper, we didn't turn the TV on in the morning.
		1.4	I hate being home sick because in the daytime TV, there's nothing on.
A		1.3	We've tried ABC, NBC, and CBS and there's only one newscaster for me that doesn't editorialize very often, hardly ever: maybe once a week
			Diane Sawyer makes me want to leave the room and go hide in the closet.
			Scott Pillie on CBS rarely editorializes. On the same story, Sawyer says something like "We all feel real sad about that".
			That's a comment she'll make on national news. "We feel so sad". Don't include me, lady.
			Maybe I do and maybe I don't. But it's not your place to say that.
			When I was in college, I took journalism classes. We were taught that unless your name was on the byline, you don't give an opinion.
			She and the guy on NBC (Brian Williams), he editorializes way too much.
A		1.1	I watch PBS World News primarily for that reason. In my opinion, they are pretty unbiased and they are much broader.
			Americans are not necessarily that big on world news when it comes to the regular channels.
			We get little bits, but not much international. I watch PBS for a little bit of English stuff, too.
H		1.4	I get a good feeling when I watch an old movie. I enjoy not being interrupted with all the commercials. Some channels will run them commercial-free.

FOCUS GROUP 1: Q2A (cont'd)

C			It like watching a sporting event where your team is winning. You have a good feeling. Like following your favorite on a reality show And if your favorite gets voted off (you don't feel as good about it).
C	1.6		For me, movies are an escape. I always want a happy ending. I don't want to feel bad. Just give me a happy ending and that's it.
	1.3		The DVR probably relates with the wheel and the alphabet as one of the great inventions in history. We were talking about watch in the Colts play. Ninety times out of a hundred, we don't watch a game live. We'll record it and if you start watching it an hour after it started, you can get through to the end and not watch a commercial So if there's a movie I want to watch on TV, I don't watch it live. I'll put it on the DVR and start it an hour after it starts. Or I'll watch it a week, or a month later, whenever I want to.
	1.2		When you're watching a show, the first 10 minutes there won't be a commercial. But the last ten minutes, there's a commercial every two or three minutes. You're just bombarded with them at the end of the show.
	1.5		They've already got you hooked, they figure you're going to go ahead and watch it anyway.
	1.2		But that's what we like about the DVR
	1.1		I know people who don't watch any TV live. They record absolutely everything with whatever mechanism they have And they just watch them whenever they want to and never see a commercial. I'd be okay with that, but I'm not that good at remembering to record them.
	1.3		If you're watching PBS, you don't have to worry about that.
	1.4		And of course all of the stations run their commercials at the same time, so you can't be channel surfing when a commercial comes because all you're going to be watching are the commercials.

FOCUS GROUP 1: Q2A (Cont'd)

	1.1	It make you wonder what will happen to commercial television when everybody's figured out that all they have to do is record all your shows and just watch them (whenever you want). Of course it's a pain to fast-forward through all of the commercials.
	1.5	Maybe that's why they're not too put off by going to internet TV as well. If you watch movies and TV shows on the internet, they have commercials and there's not really a way to get around them. unless it's a premium service like Netflix.
		There's usually just one or two commercials.
	1.2	But there's no way to skip over them?
	1.5	Not that I've found yet.
	1.2	When we've missed some of our favorite shows, we've watched them on our computer. And I thought there was an arrow we could push and make it (the advertisements) go away.
	1.5	Occasionally, there's an ad that will let you skip it after five seconds and count down, but the majority of time, unless it's Netflix or something like that,
		They definitely still put commercials in and some say "your fast forward and reverse buttons may not work during the commercial portions."
	1.3	From Dick's point of view earlier, we're still getting the same benefits, just without the nuisance of commercials.
	1.5	Which is, of course, what pays for television
	1.1	Unless you go to the internet and watch BBC
	1.3	We didn't have a TV in the house until I was 12. So my whole early life was without television. My uncle gave us a TV. It was a big deal in the house. "Here's the television". And a few years later, my mother said that was the worst gift she ever got, because it changed the family dynamic and family life of sitting around and eating and talking because our eyes were glued to the TV. She seriously regretted it. She said, "that was the worst thing that ever happened to our family."



FOCUS GROUP 1: Q2A (cont'd)

	1.6	I didn't have a TV until high school and that was for religious reasons. My parents didn't believe in television, and I think that's why I don't watch much television.
		I was one of ten kids, and for a long time, we had only one TV, so we had a lot of fights about what we were going to watch.
	1.1	When I was a kid, there was no such thing as two TVs.
	1.2	You didn't ask about some of the negative effects on relationships and family comeraderie. When I was working in the school system as a counselor, I discovered that a lot of kids never sit down with their parents and have dinner and talk to each other. They're all out in the TV room eating and watching TV. And I've read different studies that when people watch TV while they're eating, they eat more than if they were sitting at the dining room table. It's mindless so they're just stuffing their faces. A lot of psychologists think it's been a bad thing
	1.1	There are a lot of negatives
	1.2	I suppose some of the children can probably even get on the sex channels because the parents aren't paying any attention to blocking them.
		All these movies and all this junk that's on there is having some serious negative effects on children at too young of an age.
		I think there's too much violence on TV.
	1.4	I do, too.
	1.2	You mentioned some game where they kill people and they die right there on the screen and there's blood everywhere.
	1.5	That seems to be the majority of the popular games.
	1.1	That's the kind the kids want.
	1.2	I see the TV has having more of a negative effect on society.

FOCUS GROUP 1: Q2A (cont'd)

D,H	1.5	Antenna TV still shows Leave it to Beaver, the Andy Griffith Show's on TV Land. There's a lot of that old, good moral quality programming that literally teaches a lesson on every single episode, much like the old Star Trek series tried to do. That's not necessarily what people are wanting to watch all the time. Are our television programs getting worse or are our requests for television programs getting worse? Is the demand there for those that are not beneficial versus the ones that could be construed as beneficial? Like 1.4 said, she likes to watch the History Channel. I love educational type programming. History Channel, H2, they're both very good. But my views don't seem to be shared by a lot of people.
	1.4	I just don't see where this "Honey Boo Boo" fits in.
C	1.5	That's a dumbing of the society. I think a lot of people find it funny. I'm always amazed that some of my friends say we watch "In search of Sasquatch", "Duck Dynasty", and Hillbilly whatever's, and I'm sitting there thinking "what do you find alluring from this?" I hesitate to ask them the question because it incriminates them immediately.
	1.1	What's the other one? (thinks) "Moonshiners". I saw someone on the screen and it was on in somebody else's house and it's on like 20 times in a row.
	1.3	I mentioned that we don't have a TV in the living room. That's mostly by choice because there are experiences I've had where I go to somebody's house as a guest and walk in and the TV's on. It was on the entire evening.
	1.1	I think that's dreadful.
	Moderator	Thank brings up another issue. Do you ever turn the TV on when you're home alone even if you're not watching it?
G	1.4	Yeah, I'll turn it on and read the newspaper.
G	1.5	Absolutely
	1.3	No.
	1.6	No. I'll turn on the radio instead.

FOCUS GROUP 1: Q2A (cont'd)

D,G		1.1	Yeah. Ususally, I'll put it on music. I might put in on a television music channel. I can't say it's not been background. Ususally, I might leave the Food Channel on and if I hear something interesting, I'll go over to my iPad and get the recipe.
		1.5	The fact that the TV's on doesn't take over my life. I can have it on and maybe catch a little bit of something once in a while I'm still doing other things, typically.
	Moderate		Why do you like to have it on sometimes? As background?
G		1.1	It keeps me company.
		1.4	Especially if I'm at home alone, I just like some other noise going on. I'm used to noise around me all the time.
		1.5	I want to lean it toward multitasking to some degree. Yeah, it's on, yeah I kind of know what's going on with it, but that may not be the sole drive of the whole thing. Whereas a lot of the tasks I'm doing otherwise are kind of boring. I don't want to get sucked too deep into them.
G		1.4	When I'm home alone, too, I like to have music on loud. It kind of helps me do housecleaning and stuff, too.
		1.6	It's definitely a motivation
		1.2	I would pick music over the TV for background noise.
		1.5	It can be both.
		1.1	I will often put music on the TV because I just find one of the channels like when I feel like listening to jazz.

FOCUS GROUP 1: Q2A (cont'd)

C		1.5	I also remember a lot of people in college - my age going to college. They'd have the TV on, with the sound all the way down, and the stereo playing the music they liked to listen to. So you can't really say they were watching TV. They were listening to music more than watching TV. But they'd still see what was on. That got to the point where Wizard of Oz and Pink Floyd's Dark Side of the Moon...as soon as they start ringing the triangle on the front porch, you're supposed to start Dark Side of the Moon right there and it supposedly matches up all the way through. I always said I would do that. But let's say some of these people had more time on their hands. But I heard that was something that worked well.
		1.3	They might have had some serious attitude adjustment, too.
		1.5	They probably had some outside motivation.

			Coding Categories	
Group 2	Over 30		A	0 to 5
Question	2A	What appeals to you about those programs?	B	6 to 10
Category	Participant		C	11 to 15
<u>Code</u>	<u>ID</u>	<u>Responses</u>	D	16 to 20
			E	21 to 25
	2.2	I just want to know what's going on in politics and to know what's happening and what might be happening that might affect our economic situation. And it's just entertaining, too.		
	2.3	I like to watch TV just to escape, as in Home and Garden TV or the Weather Channel. I'm just trying to decompress. Weather is mindless. And I like to watch the home improvement stuff and Househunters.		
	2.6	It's someplace else. It's what other people are getting.		
	2.3	It's a form of escapism.		
	2.5	(I enjoy) the transformation on home and garden shows: the before and after. You might learn how to put tile in, how to lay carpet, how to hang drywall, and it's different that where it started. So I like that. I can learn a little bit along the way		
	2.3	With HGTV and the Weather Channel, I can get up and do something else. With a movie, I get engrossed, totally immersed in it and I'm gone for two hours. And then I feel guilty for spending those two hours doing that. That's why I like the weather and HGTV.		
	2.5	Sports are on a lot in my house, so I sit and watch sports only because that's what the rest of the family likes to watch. So if I want to be involved in something they're doing. If I want to have a shared experience, I have to watch a ball game.		
	2.4	When I was a stay-at-home spouse for nine years before I got back into the workforce, the only things I would watch were Bonanza, My Three Sons, Leave it to Beaver, nothing new. There's just nothing much - there's good stuff on some channels like History or Discovery, but by-and-large, rubbish.		

FOCUS GROUP 2: Q2A (cont'd)

			They generally have a moral to them, they're simple, common-day life stuff. It's the same kind of books I read. I don't read explosion, crazy sex, drugs, ... you know, I just don't read that stuff. I read boring fisherman stories: normal everyday life.
		2.2	Even though I'm fully engaged, a lot of my watching happens when I'm on a treadmill. And I just feel as though I've accomplished two things: I've watched Jeopardy and found stuff out - or found stuff about through political shows - and also gotten a workout. It's as if I've accomplished two hours worth of stuff in one hour.
		2.5	I'll go off on what (2.3) said about about escaping and entertainment. Learning. You can learn things.
		2.4	When I do, it's for escapism or to hang out with my kids.
			And when I watch movies, I'll get on the treadmill and walk two hours. I don't walk hard, I don't run, I just walk. I don't stress out my joints or anything, I just figure if I'm going to veg out for two hours, I might as well get something else out of it.
		Mod	If you were to pick one of those two activities, which one is primar? Or are the exactly the same?
		2.2	If I could do only one thing, it would be the treadmill.
		2.4	I'd like to think that, too. I'm not sure. The treadmill is the harder of the two. But it's the TV that gets me to it, because then I'm entertained while I'm doing it. (Otherwise) I wouldn't spend two hours on the treadmill. There's no way.
		Mod	Earlier, when I asked how many hours of television to you watch in a week, you said those could be two different things: How much time do I watch? And how much time is the TV on? Those can be two different things. Why would you have it on if you're not watching it?
		2.5	I wouldn't have it on. But my family would have it on. If I'm in the house all day by myself, I won't turn it on. But if they're there, they will have it on and move in and out of watching it and go to a different room and it will stay on and they'll come back again and watch it. It just stays on.
		2.6	I like to have it on. I like the noise.
		Mod	Why?

FOCUS GROUP 2: Q2A (cont'd)

		I'm not sure why. Even at work at my desk, I have music on, streaming. I just like having that background. But I do like to watch it too. What I find myself doing is not watching a lot of network stuff it's more the History Channel, the Food Network, HGTV, that type of thing. It's more than I can learn something than to be entertained.
	2.3	An example of it being on in the background would be if I'm doing another project like if I'm putting together a quilt or some other project and I'm by myself in the house - I have a house that five people live in - and if they're out, it's eerie. So I like to hear...I'll flip on the Weather Channel and I'll do my thing and if something catches my eye, I might watch it, but it's really somebody else talking, substituting for the family: voices.
	Mod	Anyone else use it as (2.3) described?
	2.4	I would yell at anyone in my house who has it on and wasn't watching.
	2.6	Usually, my husband's in his room working and I'm in the family room doing something. I can't say that I sit there and just watch and not do anything else. It's something else I'm doing while I'm watching it.
	2.2	I used to watch TV a lot for entertainment, but over the years, that's kind of changed. I kind of swore off series TV like Hill Street Blues and stuff where you had to watch every week because I found myself becoming a prisoner. I would have to be watching TV Wednesday at 9:00 because otherwise, I'd miss a week, and I won't know what's going on and that's no way to live.
	2.3	Now you can buy those series on DVD and put them in whenever you want.
	2.2	Eventually, I'm going to see "24" just that way. But I love having all these choices. It used to be that you had just three choices. It kind of dictated what you watched. Now even without interactive TV, you can choose because there's 70 or 80 channels.
	2.6	It's really bad, though when you still can't find anything you want to watch.
	2.3	That's the other side of it. You have all those channel choices and you're like, (I can't find anything that interests me)...
	2.6	I'm not a sports person so I don't normally watch sports.
	2.3	We grew up with maybe three or four channels. That was it!

FOCUS GROUP 2: Q2A (cont'd)

	2.5	So we have 3-D TV. I bought it as a present for my husband's 50th birthday. So the boys will come over and put the little goggles on and watch 3-D TV. It's kind of cool.
	Mod	Tell us more about that.
	2.5	Mostly, I know he has video games that he can play in 3-D. And certain movies that have 3-D capability. But you have to have the goggles on to see it in 3-D.
	Mod	How much time do you spend watching 3-D TV on a weekly basis?
		I go up there almost never. The kids go there and play video games on it. It's not in the living room. If we go up there, it's to watch a specific show, or to show someone the capability, like, "Come up here, this is really cool." And after 15 or 20 minutes, the novelty has worn off and we go back downstairs. I don't know if all TV will be 3-D in the future. Are they beginning to film more in 3-D?
	2.6	It's a fad. I don't know how long it's going to stay.
	2.2	I read recently that the current generation is the first ever to watch less TV than their parents. And at the place I work on the weekends, a transitional home, those guys, who are basically just typical boys with developmental disabilities, they almost never watch TV. One will watch sports. That's it. They're more into video games on a TV. But very rarely will they watch a show. And from what I read, it seems like kids are watching less TV than we did.
	mod	There are certainly changes. I can tell you that last year, the U.S. lost 1.2 million TV households, according to Nielsen. And it's been on a downward trend for 15 years.
	2.6	My brother-in-law and sister-in-law both do not have TVs.
	mod	Did they used to have one?
		Yes, my sister-in-law did.
	mod	It's still pushing 98 percent. But it used to be pushing 99. At the same time, Nielsen is also now counting three screens: TV's computers, and mobile devices. And they say there's more TV watching today than ever. I didn't dig in to see how that might stratify with age. So while we're at an all-time high, it's not all coming through the home television set.



FOCUS GROUP 2: Q2A (cont'd)

	2.2	We have some friends of Indiana descent but have lived in the U.S. for quite a while. I noticed at their house, they have a pretty expensive cabinet with closable doors. Most of the time it's closed, and the TV is in there. So the TV is not visible except when they're watching TV. And I thought maybe it was a cultural thing, but I think it's also a parent thing. TV maybe isn't as important to them as it was to me in the past or even in the present. They definitely don't want their young child watching TV all the time, or even thinking about watching it, so they just keep it out of sight most of the time.
	mod	Does anyone in this group remember a time when there wasn't a TV in your home?
		No.
		I ask because in a similar session 48 hours ago, one person didn't have one until she left for school. For religious reasons the parents did not want a TV in their home. Another reported being 12 when his uncle brought them a used TV.
	mod	(To 2.2) You mentioned getting 70 or 80 channels. Do you know how many you get?
	2.2	That's what I would guess, not including the music channels which I would guess there might be 30.
	2.6	It depends on if you have HD, too.
	2.3	That's another thing. You have Weather Channel on channel 30, but on HD, it's on 1111. So there's another choice; you can get HD or not.
	2.6	So I find myself watching HD. Why would I want to go back to that?
	mod	There's a good reason for that. 1111 doesn't give you the local forecast. 30 does.
	2.2	What does 1111 give you? Just national weather?
		Yes
	2.6	So that's what I watch, when Sandy was hitting the Northeast, for instance.
	2.2	I had no idea.
	2.2	If you go back to watching TV often, now on Comcast channel 248, but it's even on broadcast channel 13.3, it's all oldies, and I think 253 is also. It's westerns, including The Rifleman, Wagon Train, Death Valley Days, and even people without cable can watch it.

FOCUS GROUP 2: Q2A (cont'd)

	2.6	It seems like there's a couple different channels that have the old shows, like TV Land.
	2.2	Sometimes it seems like TV Land and especially Nick at Nite, their idea of oldies is like 1998 or something: early Everybody Loves Raymond or something.
	2.6	TV will continue to be part of my life. I'm not going to give it up.
	Moderator:	What appeals to you about the news?
	2.2	I want to know what's going on: something that might be of relevance to me, if there's a road closed down, or someone I knew got killed.

				Coding Categories	
Group 3	Under 30			A	Information
Question	2A	What appeals to you about those programs?		B	Entertainment
				C	Escape
Category	Participant			D	Learning
<u>Code</u>	<u>ID</u>	<u>Responses</u>		E	Multitasking
B	3.3	I like the drama		F	Socialization
	3.4	(I like watching Cops) just because it's real. A lot of the other reality shows I can kinda see through but I like Cops because it's real... not a hobby of mine but this would be cool as a second job.		G	Compantionship
B	3.4	(In 30 Rock and The Office) the script and the humor are appealing.		H	Nostalgia
B	3.3	The uncomfortable situations/scenarios are what appeals to me most about these shows.			
C	3.1	What appeals to me (about Smithsonian Channel and Animal Planet) is the direct opposite of what Jenn said, i.e. that there is no drama, it's very chill			

					Coding
Group 1	Over 30				A Gaming
					B Learning
Question	3	Do you use your TV for any purpose other than watching programs? If so, what are they?			C Display photos
					D Listen to music
Category	Participant				E Exercise
<u>Code</u>	<u>ID</u>	<u>Responses</u>			F Reward
all	1.5	I've got mine hooked up to the computer in my living room now.			G Other
		And I can do there anything I can do on my computers.			
B	1.2	We use ours for a Wii game system.			
C		We use it too, to show pictures we've taken on our camera			
C		We put the disk in the Will and do slide shows on the TV			
	1.3	We watch a series like Seinfeld fifteen years after they've aired. (DVDs)			
D	1.2	We have a large selection of concerts on DVD at the same time we're listening to them on our stereo system. That's fun			
D	1.1	I listen to music. I might play the music channels or listen on Pandora			
D		It's a radio with a very boring picture			
	1.3	1.5 said he listened to a lot of music, do you use the music channels?			
	1.5	Typically what I watch is VH1.			
		And the majority of that is to stay up on what's out there.			
		Beause in my boat or my car or anyplace else, I'm listenting to music on my iPod.			
		So if I don't have some exposure to some of the new stuff that's coming out, I don't get exposed to it at all.			
E	1.3	I've used the Wii gaming system's Wii fit program. You can exercise with an avatar on the screen.			
E	1.6	I do a little dancing with Dance Revolution once in a while, for exercise.			
A		We have Wii Bowling which is really kind of fun.			
A	1.2	I like the golf.			

FOCUS GROUP 1: Q3 (cont'd)

		The problem is the room isn't really well suited to the Bowling. We have to move the furniture. Plus, it's really disgusting. My son is so good at getting strikes, I can't compete with him at all.
Group 1 Q3 (cont'd)		
		It's not just a one-time thing. He repeats it frame after frame. He's got that thing nailed. Which makes me really unhappy.
C	1.4	My dad takes a lot of pictures now. He's in his mid-80s. We used to sit around the house with the old projector and we'd watch the slides he'd taken and old movies and he's got all that set up
	1.1	Do you know if tons of people use their TVs for gaming?
	1.3	Not much; I don't have time.
	Moderator:	I can tell you, and don't quote me exactly, but I just read it and the numbers were big. On the first day of sales, World of Warcraft or Call of Duty (can't remember which) had more sales than all of the Harry Potter programs combined throughout their term. Yeah, gaming is really big.
	1.1	They play it on TV as opposed to on computers?
	1.5	Nowadays, people mostly use the TV because they want a large screen.
	Moderator:	Wii is a game console. How many have a Wii? (Three)

Group 2	Over 30				Coding Categories	
Question	3	Do you use your TV for any purpose other than watching programs? If so, what are they?			A	0 to 5
					B	6 to 10
Category	Participant				C	11 to 15
<u>Code</u>	<u>ID</u>	<u>Responses</u>			D	16 to 20
	2.4	Video games			E	21 to 25
	2.2	We don't even have a VCR hooked up right now.			F	26 to 30
	2.3	Video games, Rock Band, MineCraft, or movies, DVDs			G	>30
		We sometimes put paper over the screen and use it as a target for our little suction-cup guns.				
	2.4	They stick, you know.				
	2.2	I've done that.				
		Last night my daughter had her iPod plugged into it and we were doing the "wobble dance" or whatever. We were using it that way. So she could teach me that dance.				
	2.3					
	2.4	We plug in our camcorder and watch the videos we have just shot on the TV				
	2.3	We've done that, too				
		We watch DVR and DVDs. Occasionally we've got music on the cable on and I'm listening to music through it.				
	2.6					
	mod	Using it as a radio, effectively, although you have a picture with information about the artist and song?				
	2.6	yes				
	mod	anybody use it as a screen for your internet connection?				
		All "no".				
	2.6	I've used it for exercise.				
		Another thing we use the TV for is to hook it up to the computer and watch pictures. We might get it out and show the pictures to family over Christmas.				
	2.6					

FOCUS GROUP 2: Q3 (cont'd)

	discussion	My husband burned a thumb drive for that purpose. You can also use a DVD. We go straight from the computer.
	mod	Why would you do that, but not plug your computer in to watch other content it can deliver through the television and its bigger screen?
	2.6	Because I don't watch Hulu, and this was an uncle's slide show. It was the easiest way to get it to the TV.
	2.2	A reason I wouldn't - and I don't do what she does - but if I'm watching something on Hulu, it's just for me. We're not watching it together. So I actually prefer watching it on the computer because I can go to the bedroom, the living room, or anywhere. So I don't want to do it on the TV because then I'm stuck.
	2.3	I prefer the bigger screen. I know some people are "down here watching like this" (acting out an interaction with a smartphone or notebook).
	2.6	I like to watch movies on it, but only like on an airplane. Something like that or not at all.
	2.4	How big is your TV?
	2.3	I think the one downstairs is 42". And the one in our bedroom is like 51"
	mod	Is that where you watch the most television?
		No. The kids want it downstairs, but that's not happening.
	2.6	We watch the News in the morning and the news in the evening, but that's about all we watch. And to see what the weather is like outside.
	2.3	We have our bedroom TV in a cabinet and I always close the doors. But when I get home from work, they're open and the kids have been watching it.
	mod	That raises a question: you have school-aged children?
	2.3	Yes
	mod	Do you ever use the TV as in 'I'm not going to let you watch TV until you're done with your homework?'
	2.3	I've done that.
	2.4	I sure do.

FOCUS GROUP 2: Q3 (cont'd)

		2.5	I've used it as a carrot and a stick. You get to watch TV if you do this, or I'll just take all of the TV time away. All gone
		2.6	We did that with video games for years and years, because I knew if we had one, my sone would be addicted to it. So he got one when he was in college. And now, he's addicted to it. Now both my daughter and he have video games, the Wii, I don't know what all.



			Coding
Group 3	Under 30		A Gaming
			B Learning
Question 3	Do you use your TV for any purpose other than watching programs? If so, what are they?		C Display photos
			D Listen to music
Category	Participant		E Exercise
<u>Code</u>	<u>ID</u>	<u>Responses</u>	F Reward
B,C	3.4	I've got a playstation plugged into mine and I also use it as a monitor as well.	G Other
	3.4	It's a 24-26 inch screen	
	3.4	I have my computer sitting at my desk, so I'm either watching TV from farther away or I'm sitting at my desk with that as a second display	
	3.3	I watch movies more than I do TV so mostly to watch movies (DVD). I normally get home pretty late so it just kinda keeps me up.	
A	3.2	Gaming, we have a Wii and use that a lot. And I'd say most of what we watch is roughly split 60-40 between recorded DVR and Netflix. Clarification: 60 percent Netflix, very little live, the only live we watch I think is sports.	

			Coding	
Group 1	Over 30		A	Email
			B	Texting
Question	4	Do you own a smartphone, notepad, or iPad? What do you use it for?	C	Surfing
			D	Information
Category	Participant		E	Gaming
<u>Code</u>	<u>ID</u>	<u>Responses</u>	F	Video
	1.1, 1.2, 1.3,	Yes	G	Social Media
	1.5, 1.6		H	Music
	1.4	I have the old flip-phone	I	Search
D,G	1.6	Social networks, weather,	J	Other
A,G	1.1	Facebook to stay up with my kids and I read my email.		
J		I'll read books on them		
B	1.3	Read an article that said if you want to get back in touch with your grandkids, learn how to text.		
G	1.2	A friend has no interest in Facebook, but joined so she could read about her grandkids.		
G	1.1	That's why I did it (joined Facebook)		
J	1.3	I've taken Newsweek magazine for 40 years and they just stopped printing it		
		So I can use the iPad to read Newsweek. And I thought I would hate using the iPad to read it.		
		But it's not bad. You can flip pages and get videos that accompany the article. It's pretty neat.		
D,I,J	1.2	I take the iPad on trips. I can google restaurants in the area as we're driving along the road.		
		I have books and magazines on it.		
	1.1	I get up in the morning and to and get the paper for my husband and I go get the iPad.		
D,H,I	1.2	I can get the weather channel, pandora, google stuff		
I	1.1	You can google stuff. Any word I see that I don't know what it means, I have to look right away.		
		Probably don't use the TV as often because I am on the iPad instead.		
I,J	1.6	I probably don't use the TV as often because I use the iPad instead. Reading, surfing.		

Group 2	Over 30				Coding Categories	
Question	4	Do you own a smartphone, notepad, or iPad? What do you use it for?			A	0 to 5
					B	6 to 10
Category	Participant				C	11 to 15
<u>Code</u>	<u>ID</u>	<u>Responses</u>			D	16 to 20
	2.3	Yes			E	21 to 25
	2.4	Yes			F	26 to 30
	2.2	yes			G	>30
	2.1	Yes				
	2.6	No				
	2.5	Yes				
	Mod	Five of you do, and one does not? Yes.				
		For those of you who do, what are the common uses you make of that device?				
	2.2	Email				
	2.3	Email, mapquest directions				
	2.4	I don't often use my iPhone as a phone. I use it for email. The boys play video games on it. I generally don't even have my phone at home. Which suits me; I'd rather not have it on me anyway. It's just email and so the wife can get ahold of me.				
	2.1	Watch something. So someone can send thanks for me, texting				
	2.5	Texting				
	2.6	Texting, Facebook, email, games				
	2.5	Listening to music				
	2.6	Yes, I listen to a lot of music on it. It's my music. I also have a walking thing, a GPS that can tell me how far I've walked, how long I've gone, so I use it all the time.				
	Mod	Do you search the internet on it?				
	2.5	yes				
	2.3	yes				
	2.4	occasionally				
	2.6	yes				

				Coding	
Group 3	Under 30			A	Email
				B	Texting
Question	4	Do you own a smartphone, notepad, or iPad? What do you use it for?		C	Surfing
				D	Information
Category	Participant			E	Gaming
<u>Code</u>	<u>ID</u>	<u>Responses</u>		F	Video
	all	Yes.		G	Social Media
B,G	3.3	Mostly just texting messaging and social media. I only have an iPhone, no iPad, so I don't like to browse on my iPhone, it just takes too much battery.		H	Music
	3.3	It's just an iPhone, so it's not convenient to surf on it while watching TV or anything.		I	Search
B,G,J	3.4	I use mine for texting and social networking, and also as a camera as well.		J	Other
E,D	3.2	Games, news, weather			
J,A,D	3.1	I use it as as watch to tell time, for weather as well, and to check my email, it's just so convenient, you know, you don't have to go open your computer. And I have a few very useful applications that I use quite a bit, such as organizers, and reminders, and my bank app, things like those			
D	3.3	I will say while watching TV with my phone if they mention something celebrity-gossip-wise on TV I'll Google it because they are not going to come back to it until after the commercial break, but it's already happened, so I can look it up. So it enhances television, you don't have to wait to find out.			
D	3.2	Along those lines I use IMDB internet movie database pretty regularly. If I recognize somebody I will try to figure out where I've seen them in another show... few times a week.			
D	3.3	I've gotten really bad at looking up... If I'm watching a movie and I can't handle the suspense I will read the synopsis on IMDB so I know what's gonna happen.			
B	3.1	I have owned my iPhone for 2 months now, and before that I had just a \$10 phone from Walmart, and I find that it a lot easier to text people, but because its so easy I find myself doing it a lot more than before. Before I called or texted only when I had to, but now I call or text for entertainment or, you know, when its really not warranted.			

FOCUS GROUP 3: Q4 (cont'd)

	Moderator	Do you play games on your computer?
	3.1, 3.2, 3.4	Yes.
	3.2	It's called Battle Nations, I do that on my iPad, and Words with Friends or something like that.
	3.4	Mostly the games that I do are with remote people. Games get old pretty quick, so it all depends on whats new that month.
	3.3	(I don't play games) because they are not stimulating enough.
	1.1	I play very little and when I play it's mostly just to kill time, like stupid games when I'm waiting for someone to do their shopping, etc.
	3.3	I've played words with friends but I feel like if that person is not online at that time then you have to wait for them to respond, it doesn't really even pass time, it just makes me wait for something.
	Moderator	Do you watch TV on your computer?
	3.4	Not full length programs, maybe clips or YouTube videos.

				Coding	
Group 1	Over 30			A	Email
				B	Texting
Question 5	Does your TV offer any of those same features? If so, please describe them.			C	Surfing
				D	Information
Category	Participant			E	Gaming
<u>Code</u>	<u>ID</u>	<u>Responses</u>		F	Video
all	1.1	I can do all that on the big screen, just like you (1.5) can. We haven't really set it up to do it, you know, I don't see sitting there with this, my God, with this huge damn TV writing email on it. I don't know, it just seems weird.		G	Social Media
		Yes, we could do everything on there; everything you can do on a computer, you can do on the		H	Music
	1.2	But you still have to have a computer		I	Search
	1.2	You've got to have some sort of a machine			
all	1.5	There are smart TVs out there too.			
	1.2	How does that work?			
	1.5	Don't know; I don't have one. I've got a computer hooked up to a projector.			

Group 2	Over 30				Coding Categories	
Question	5	Does your TV offer any of those same features? If so, please describe them.			A	0 to 5
					B	6 to 10
Category	Participant				C	11 to 15
<u>Code</u>	<u>ID</u>	<u>Responses</u>			D	16 to 20
	2.4	I have no idea. I hope not.			E	21 to 25
	2.4	Music, as someone else mentioned.			F	26 to 30
	2.6	I would assume I can hook my TV up to the internet, but if I can get it through the cable...			G	>30
	2.5	I think there are some games that we can get through our satellite. You can go to a particular channel and say you want to play a game, it wil download it and you can play the game.				
	Mod	Have you used it?				
	2.5	My son has. Like a modern version of a Pac-Man kind of game.				
	Mod	Do you know if he can play with people in another home or another country?				
	2.5	It was a long time ago, and I think it was just him playing against the computer, or a timer, or something.				
	2.3	My kids will do that. They'll play against opponents from another state throught Xbox.				
	2.4	My kids will do that, too.				
	Mod	And the television screen is what they're using to display the game?				
	2.4	Right. Call of Duty is what my kids like to play. So that matches them up with people all over the place. They can do a wireless option.				
	2.5	I think that's the main one.				
	2.4	Live chat is another thing they can do. They can chat somehow. I don't know how; I don't let them do it, but somehow they can.				
	2.3	Yes, I know that my son does that.				
	2.6	World of Warcraft can do that, too.				

FOCUS GROUP 2: Q5 (cont'd)

2.3	I know Xbox will do that. Minecraft also allows that.
Mod	Who can listen using this headset?
	My stepson lives a couple hours away. So I've heard him on the TV. So I think you can do it both ways.
Mod	So anyone in the same virtual game "room" can hear what anyone else in the same virtual room says?
2.3	I think so
2.4	Yes.
2.3	I have limited knowledge, but I go past the TV and hear someone talking and think, "who's here?"
Mod	Call of Duty Does that?
	yes
Mod	World of Warcraft does that?
	yes
2.3	I think Minecraft does.
2.4	I play that with the boys. I've never seen that, but we just do the free online version
2.5	Can you play sports games with one another? I think some of my son's friends are waiting to get a new sports video game that does that.
2.4	That's pretty common, some kind of voice chatter.



				Coding	
Group 3	Under 30			A	Email
				B	Texting
Question	5	Does your TV offer any of those same features? If so, please describe them.		C	Surfing
				D	Information
Category	Participant			E	Gaming
<u>Code</u>	<u>ID</u>	<u>Responses</u>		F	Video
	moderator	Gaming		G	Social Media
E	3.4	Yes, via game console		H	Music
E	3.2	I know my cousing is playing Modern Warfare and other shooting games		I	Search
E	3.3	Online gaming			

				Coding	
Group 1	Over 30			A	Email
				B	Texting
Question	6	What does the phrase "interactive TV" mean to you?		C	Surfing
				D	Information
Category	Participant			E	Gaming
<u>Code</u>	<u>ID</u>	<u>Responses</u>		F	Video
J	1.1	Some sort of two-way communication, like when you skype. On the iPad		G	Social Media
E	1.3	You could be game-playing with live people in other places simultaneously		H	Music
		on the same game		I	Search
D,E,F,G,H	1.4	I think 'when you're in more control'. With the TV, when you turn it on, you get what you get.		J	Other
		This is where you could control more what you're doing.			
	Mod	Moderator: Such as?			
E,J		Interacting with somebody else, or playing a game, or...			
	Mod	When you say "interacting with somebody else,..."			
A	1.4	Or on the internet, looking at your email, something like that.			
J		For me, truly interactive TV, if you're looking at it from an entertainment standpoint, would be the opporunity to have various outcomes at your selection: various things that.			
		plug into an on-going program. So it wouldn't be just how the writer envisioned one			
		direction to take it with a start point and end point , but that you could branch out in			
		other areas as well.			
J		I think with interaction, you have your iPad and you can search for what you want to watch			
		for. I find that more interactive. "I want to watch this", so I'll go and find it, other than			
		"this is what's on."			

Group 2	Over 30				Coding	
					Categories	
Question	6	What does the phrase "interactive TV" mean to you?			A	0 to 5
					B	6 to 10
Category	Participant				C	11 to 15
<u>Code</u>	<u>ID</u>	<u>Responses</u>			D	16 to 20
	2.2	You can request something, or help make something happen on the screen like determine the ending of a show or request something and the TV will respond with something you've asked for.			E	21 to 25
	2.3	I think of the Wii and Rock Band.			F	26 to 30
	2.6	When you go into the cable and get programs that aren't broadcast right now, but they're available whenever you want the.			G	>30
	2.4	I think it could be either of those. You can interact with your choices or by the game itself				
	Mod:	If I took "TV" out of that question, what does "interactive" mean to you?				
	2.4	Give and take				
	2.2	Between entities: either another person or a machine. I do something, and it does something.				
	2.4	To me, it implies some level of control. I can do something and make something happen.				
	1.6	Yeah, I would agree with that. It takes a level of my action for it to react to me. Go back and forth.				
	2.4	My TV, through the satellite, will have a little "I" around something and if you do something with the clicker and you click on that, it will bring up information on that product or take you to a site to learn more about that product or whatever it is that little "I" was signifying. So that's a little bit interactive. It will go away if I don't click on it, but I can click on it and make something happen or learn more about what the product is.				
	Mod:	So it's more than just advertisements?				
	2.4	I'm thinking it's mostly advertisements.				

FOCUS GROUP 2: Q6 (cont'd)

		2.4	I've used a game called wishy washy, or something like that. A camera watched your hand, and you had a certain amount of time to "paint" the whole screen. So things happen on the computer screen as a result of the movements you were making. It was something on the PlayStation
			Wii has the same thing. Things on the screen are changing as you move the controller. I think that's interactive.
	Mod		We've talked a lot about interactive. It includes everything from exercising with in concert with an image on the screen to playing games and talking with the other players who may be in different countries, all in real time. Do you see any qualitative difference between these two interactive uses. Is one a higher level or are they fundamentally the same thing?
		2.6	I think some are higher-level than others. Watching a video is just plain. I'm not making it do anything to change. I'm just watching it. Now if you're playing video games with the headset on, you're making things happen on the screen and it's going back and forth. But just watching something and doing something along with it, to me that's not really as interactive as much as a game would be.
		2.3	I watch the kids and they're talking, they're using their controllers and it's all this high-end hand-eye coordination which is just how they know. I know I would just throw it in the air.
			So the fact they're multitasking with this is great.
	Mod		TV producers and distributors use the phrase a lot, but I've not seen any of them define it. They say, "here's interactive TV, you can watch a program we've stored for you. You don't have to capture it from the TV to watch this movie. It's similar to what a VCR would do, except it does all the work for you. On the other hand, it's everything we've talked about that includes gaming with people around the globe. So don't feel frustrated about not having a definition of interactive. It's one of the things I'm trying to explore: not what it means to me, or to Comcast or Dish Network, but what it means to you and how you use it. So your perspectives are all very helpful.
		2.5	I consider the Wii to be very interactive because you control it. You control what's happening on the screen with the hand-held controllers.

			Coding
Group 3	Under 30		A Email
			B Texting
Question 6	What does the phrase "interactive TV" mean to you?		C Surfing
			D Information
Category	Participant		E Gaming
<u>Code</u>	<u>ID</u>	<u>Responses</u>	F Video
G	3.3	For me it's if they tell you to tweet during the show or the program or the commercial tells you to tweet or go on Facebook or "sign up for this contest by going here" type of thing.	G Social Media
	3.2	For me, since there is no definition of interactive, being interactive TV would mean ways of actually interacting with the TV so actively not passively engaged in what is taking place. For me that might go to the extreme, when basketballs are intense, so I am actively yelling at the TV.	H Music
	Moderator	Does it change anything?	I Search
	3.2	No, so I don't know if in interactive activity needs to effect a change.	J Other
	Moderator	It's more engaged than watching a movie, or watching Cops, or maybe watching some other things when you are jumping up, it's causing you to become more engaged	
	3.2	One show called the aftershow, it comes on once a week, its like an interview recap of the show, they even have a word of the day when if they mention it you have to drink, and the guest doesn't know what word it is.	

FOCUS GROUP 3: Q6 (cont'd)

	3.2	For me interactive TV is about interacting with the TV content via a different device, like you watching your movie and something comes up and you check it... not something you just get curious about, but TV prompts you to go tweet about some things, or it prompts you to go look for some content which is elsewhere, but if you find it you get a reward of some sort. It makes you do some things other than just watch.
	3.4	Being able to interact and see your results on the screen. Like with live news and live shows, they are able to address it. Like I know on Today's Show they would read their Facebook comments or they post a poll and they talk about it live, so part of me always wants to go check it out. Sometimes tweets appear along the bottom, like on news shows or sports shows.
D	3.3	I don't know if it would be interactive or not, but when my girls watched the movie Argo we had no clue what the Iranian hostage crisis was so in order to figure out what the movie was about I was on my phone for a little while reading about that. ... And also the main channel I watch is Bravo and they have their app where you can go for extended scenes, live conversations, etc

Group 1	Over 30			
Question	7	Are you aware of any interactive offerings from your providers, and if so, what do you know about them and have you used them?		
Category	Participant			Coding
<u>Code</u>	<u>ID</u>	<u>Responses</u>	A	Async Progs
	1.4	I have no idea.	B	Gaming
	1.5	I think they do but I don't know what all that means.	C	Texting
	1.1	I don't know.	D	Surfing
	1.5	They've not done a good job of promoting it, at all.	E	Shopping
	1.3	I'm guessing Comcast doesn't offer it yet. I can't think of anything I've gotten from Comcast that's offered that capability.	F	Shape content
			G	Other
	Moderator:	What kind capability?		
A,B,C,D,E,F	1.3	Well, if I had my computer hooked up to my TV, which I don't, because I don't have a reliable wireless thing and I don't have an extra computer to stick in there, that my receiver and my TV and all that would handle. If I had internet in there, then I could do on that screen anything with television. I could be playing for example, games with people in other locations.		
	1.1	I don't think of that as being television. Did you say interactive television, or is that interactive		
	Moderator:	Interactive services, that might be offered by your television provider.		
	1.1	TV's rubbish.		
	1.5	I like what Gallagher said: "TV's not really good. They have a brightness knob but that doesn't do anything."		
	1.1	There's wonderful stuff, but ..		
	1.2	It's in the minority.		
	1.1	I've never seen any "Boo Boo", but I've heard such awful jokes.		
		And just to think some of these things are on TV.		
		Any I'm paying for 99 channels and I watch the same three. It really is awful.		

GROUP 1: Q7 (cont'd)

	Moderator:	How many of you have a home theater system? Five yesses.
		I'm being somewhat facetious, but we seem to be very much an audience when we watch TV. We're not really shaping it. TVs are used for a lot of things, news being one of them, but I don't know of any house that has a news room. We have dimmed lighting systems, theater surround systems, and big screens. It appears we enjoy being entertained by TV, something that doesn't require any action. Thoughts?
	1.1	I think that's still a big part. I think that's why most of us stil watch. When we go and sit down in what we call "the TV room", because it has a big
		TV and if we want to have a Super Bowl Party, that's where we'll have it.
		I watch it for information, but for entertainment (also). I think
		entertainment is still big.
	1.3	We don't have a TV in our living room.
	Moderator:	(To all) How many TVs do you have in your home?
	1.3	Two
	1.4	Two that are plugged in.
	1.5	We went on a diet. It was eleven, now it's five. I actually had it wired in so that I could put a DVD in and get it in all TVs through the house. I could select what signals went to each room, so I could control what was playable in my daughter's room. And when I was watching a movie, I didn't just sit and watch the movie; I'd go around the house and get stuff done while I was watching it. It was just background entertainment. Nowadays, it's a little tougher to do that way.
	1.1	We have six
	1.6	Three
	1.4	Five
	1.1	The only room that doesn't have one is the formal dining room and we never eat formally. Yeah, it's pretty bad.



Group 2	Over 30				Coding
					Categories
Question	7	Are you aware of any interactive offerings from your providers, and if so, what do you know about them and have you used them?		A	0 to 5
				B	6 to 10
Category		Participant		C	11 to 15
<u>Code</u>		<u>ID</u>	<u>Responses</u>	D	16 to 20
		Mod:	A lot of this was discussed already, but are there specific services we've not talked about?	E	21 to 25
		2.4	Do we consider "on demand" movies or TV shows interactive?	F	26 to 30
		Mod:	I'm interested in your definition.	G	>30
		2.2	I consider that interactive. The last time I did that was about 2001, though.		
		Mod:	So you're watching synchronous TV?		
		2.4	I consider that interactive. I can make it happen, I can decide if I want to watch that or not.		
		Mod:	How is that different from switching the channel?		
		2.4	It's not being broadcast at that moment. It's sitting somewhere. I get to pick whether it comes		
		2.2	Starting time and everything.		
		2.6	You can stop it and come back to it later and it picks up where you left off.		

			Coding	
Group 3	Under 30		A	Async Progs
			B	Gaming
Question	7	Are you aware of any interactive offerings from your providers, and if so, what do you know about them and have you used them?	C	Texting
			D	Surfing
Category	Participant		E	Shopping
<u>Code</u>	<u>ID</u>	<u>Responses</u>	F	Shape content
	3.1	You can do that (go to stored programs). I would say that interactive is more than just that (ability to store programs). Just that doesn't make it interactive, but you can do that.	G	Other
	Moderator	What makes TV interactive then?		
	3.1	That something comes on the TV and then you have to use your computer, phone or iPad in order to like vote, so now you are participating in creating content you are watching, that kind of thing.		
	Moderator	So you are not really interacting with the TV... The TV is feeding you one-way content, saying that if you want to interact with us, go to some other place and do the stuff, go to your iPhone, iPad, a computer, and do something and we will pick it up from those devices, not the TV, but we'll display it on TV, so you're		
	3.2	(to Kat) If I'm understanding you correctly, when you say interactive TV you're thinking of content, what you're watching. (to Dick) But when you're asking about interactive TV you mean the physical television set, the device itself, not content.		
	Moderator	Your TV is different. It's a smart TV. Talk to me about smart TV is.		
	3.2	My remote is a miniature keyboard. It's got two thumb controls on the top to move the mouse around, a few other additional button on the top for different functions as well, it's a little spaceship keyboard... control panel.		
	Moderator	How often do you use that differently than you use the TV?		
	3.2	Frequently because of Netflix being built in or Amazon Prime to watch videos on Amazon, but other than those two activities - that's it.		
	3.1	I didn't even know they existed, these spaceship TVs.		

Group 1	Over 30				Coding
					A Async Progs
Question	8	How well does your definition of interactive TV describe the services?			B Gaming
					C Texting
Category	Participant				D Surfing
<u>Code</u>	<u>ID</u>	<u>Responses</u>			E Shopping
all	1.1	I can do anything on that big screen that I can do on a computer.			F Shape content
		But it's not "television". It's all Internet-based email, music, or whatever.			G Other
		I'm thinking I do not understand interactive television.			
		You're just using it as a bigger screen for you computer.			
B	1.3	To 1.6: How do you get Netflix on your TV? How does that happen?			
B	1.6	It goes through our Wii. And then it's connected to a projector. The Wii gets its signal from the Internet via WiFi.			

Group 2	Over 30				Coding Categories	
Question	8	How well does your definition of interactive TV describe the services?			A	0 to 5
					B	6 to 10
Category	Participant				C	11 to 15
<u>Code</u>	<u>ID</u>	<u>Responses</u>			D	16 to 20
	2.1	I can do anything on that big screen that I can do on a computer.			E	21 to 25
		But it's not "television". It's all Internet-based email, music, or whatever.			F	26 to 30
		I'm thinking I do not understand interactive television.			G	>30
		You're just using it as a bigger screen for you computer.				
	2.3	To 1.6: How do you get Netflix on your TV? How does that happen?				
	2.6	It goes through our Wii. And then it's connected to a projector. The Wii gets its signal from the Internet via WiFi.				
	2.2	I expected by now there would be more interactive TV. I thought by now we'd be able to dictate when we want to watch anything. But that doesn't seem to be happening. We still have to tune it in at 8 o'clock.				
	mod	Like a 1972 Dick Van Dyke Show?				
	2.2	Yes. And I even thought new stuff. Just push a button and it's just not there yet.				
	mod	Can you do that on the computer?				

FOCUS GROUP 2: Q8 (cont'd)

		2.6	Yeah, some of them like Hulu, and maybe even through on-demand on cable I guess. I haven't been out there a lot, but my kids do it a lot.
		Mod	Do they watch it on a TV or a computer, or something else?
			Up until she got a TV, she watched it all on computer. But she got a TV last year and now she's got cable.
		mod	Do you know if she connects the computer to the TV?
			I don't think so because it's through Ball State.
		2.3	(My husband) will do that. He'll take the Internet cord and plugging it into his laptop on the treadmill and he'll watch HULU (and things like it).
		mod	Using a laptop, not the television?
			Yes.

Group 3		Under 30			Coding
					A Async Progs
Question	8	How well does your definition of interactive TV describe the services?			B Gaming
					C Texting
Category	Participant				D Surfing
<u>Code</u>	<u>ID</u>	<u>Responses</u>			E Shopping
	Moderator	What do you think the TV provider means when they say interactive TV?			F Shape content
	3.1	I think they don't use the word correctly, i.e. they don't use the word the way I use the word. I think they refer to the opportunity to record and store stuff, and manage your own content, and whatever else they empower you to do, but not meaning that "our content gives you an opportunity to access extra content".		G	Other
E	3.4	Whenever a cable company says "interactive TV" it's just really an option to buy stuff, so when there is a commercial comes up they say "use the interactive remote now to buy it" It's not like games or entertaining, it's monetary on their side.			
	3.4	On certain movie commercials you can buy the video now, a little banner pops up.			
	3.3	So yeah, they are showing you a clip of the movie you can actually watch right now, pay per view if you click this button, instead of going to rent that.			
	Moderator	What is fundamentally the difference between changing the channel to get different content or going to the box where the content is stored to get different content?			
	3.1	Because if I just change the channel, I don't know what's on another channel. So, if there is a commercial break and I know it's going to be on for ten minutes, I can switch to another channel and I don't know what I get, and then I'll have to switch again and again, or I can go and watch something I know for ten minutes, or for however long I want.			
	3.3	The difference is that the content you're receiving you know. You have the purpose in going to our stored content vs the content you may get if you just change the channel which may be a waste.			

FOCUS GROUP 3: Q8 (cont'd)

	3.4	When I'm watching something that is stored I feel more obligated to watch as opposed to just flipping the channels, like ten minutes during lunch, and I don't have to worry about sitting through and watching the whole entire thing. I watch the good shows stored and the stupid stuff to pass time live. ... If I catch the middle I don't have to see the beginning or the end, it's just to pass time really.
	3.1	Yes, I agree. Many shows my family members record, and then some shows we won't even watch unless all of us can watch. So if we record it we feel that same obligation to watch them, and to watch together because if they are recorded that means they are better shows.
	Moderator	Why do you feel the need to watch them together?
	3.1	John knows I like that show, and he likes that show, so he won't watch it without me so that we can watch it together, talk about it. ... Interaction is apart of it too, because mostly it is shows like Bill Maher or similar talk shows where there is a lot to talk about.
	Moderator	So its not simply a time saving device, you actually enjoy the interaction with another live human in the room as well..
	3.1	Correct.
	3.3	Me and my mom and her sister will watch our shows together simply so our comments are heard by someone there than just saying htem out loud to the TV.
	3.1	For that same reason men like watching sports together because I was told that watching football with me is not as fun because I don't get all emotional about it.
	3.2	Same for me, I like to share the expereince of watching the show, there is something about it.

Group 1	Over 30			
Question	9	Is your television connected to the Internet? If so, how does that affect your uses of it, if at all		
		Participant		
		<u>ID</u>	<u>Responses</u>	
		1.6	I'm not sure how to answer that because our Wii is connected to a projector which isn't necessarily the TV.	
		1.5	Yes, it is. Just a big TV.	
		1.6	But it's not connected to the television and we don't have cable.	
		1.5	Actually, it is. The last projectors were CRTs that worked exactly the same but the glass screen was replaced by a screen on the wall.	
		Moderator:	Defines the home television set using Nielson's traditional definition	
		1.1	My daughter owns no TV. But If you miss something on HBO, for example you can get it online after the season is over. She'll go get one of those discs if she wants to see a movie or "what-have-you". So you wonder at some point why that wouldn't be counted as TV viewing.	
		1.2	I wonder if that's happening with people younger than 30. Our son and our daughter don't have any kind of TV service. They have television sets, but they watch videos: taped things. Everything else is on their computers.	
		1.1	Internet service seems to take a higher priority for youngsters that getting TV	
		1.5	interested in by virtue of their age is programmed on the Internet because those are the people that are going to go to the internet and get it. So it makes a lot of sense for them looking for the particular program they're looking for, not to half to deal with a cable bill and all that. It gets very expensive.	
		1.6	You can go to ABC.com and get any show they've had on.	



Group 2	Over 30				Coding	
					Categories	
Question	9	Is your television connected to the Internet? If so, how does that affect your uses of it, if at all			A	0 to 5
					B	6 to 10
					C	11 to 15
Category	Participant				D	16 to 20
<u>Code</u>	<u>ID</u>	<u>Responses</u>			E	21 to 25
	2.4	It probably functions with the Internet. The internet actually functions with the Wii which then runs the image through the TV.				
	2.3	I assume you (2.4) have Comcast?				
	2.4	Probably. I don't know. Whatever the local cable provider is.				

Group 3	Under 30	
Question 9	Is your television connected to the Internet? If so, how does that affect your uses of it, if at all?	
	Participant	
	<u>ID</u>	<u>Responses</u>
	3.4	Yes, the television set itself I connected to internet enabled devices, like the laptop or Playstation, but not in the living room, so our cable TV is just a TV, just for watching live content, don't have the DVR or DVD player hooked up to that, just the tube.
	3.2	Our TV is hooked up to the internet. Netflix, there are programs installed onto the TV.
	3.1	We're able to use Netflix, so then it is connected.
	3.2	There is a computer inside of a TV that has Netflix program installed. It is not going through Netflix.com
	3.3	Not in the living room, but my brother's TV is connected to the Internet via his X-box for Hulu.
	Moderator	So he uses the television screen to blow up what would otherwise be on one of these devices?
	3.3	Yes, but without having to use the laptop, he uses his controller for the X-box.
	Moderator	How many televisions do you have in your home?
	3.3	people in the household.
	3.4	We got 3 in our house, sharing with the roommates. So we have our own TVs and there is one we share in the living room.
	3.1	We have two - 1 in the living room and 1 in the bedroom.
	3.1	We have two - 1 plugged in and 1 in storage, both functioning, i.e. the one in storage would work had we plugged it in.

				Coding		
Group 1	Over 30			A	Computer	
				B	Notebook	
Question	10	Have you used Skype? If so, how often and on what devices?			C	Smartphone
				D	TV	
Category	Participant			E	Other	
<u>Code</u>	<u>ID</u>	<u>Responses</u>				
B	1.2	Yes, on the iPad				
B	1.1	The iPad				
	1.6	Do you consider Skype and FaceTime the same thing?				
	Moderator:	Yes.				
	1.6	Yes				
	1.1	I only just started, because my son-in-law showed me how to switch it on.				
	Moderator:	Does your TV offer Skype services?				
	1.1	On the TV? No. Because I haven't figured how half of the other stuff that you can do on that TV with the Bose on it.				
	1.4	I sit at work all day in front of a computer and when I get home, I don't want to have to operate it. I want it to come on and entertain me. I don't want to have to do anything to it.				
B	1.1	I just used it because we have a daughter in Portland, Oregon. We don't get to see her very often. But we stil usually text.				
	1.2	That's why we use it: just to be able to see our daughter. After we haven't seen her in two or three months, it's pretty nice.				
	1.3	I think when we all get grandkids, we ought to get that.				
	1.4	We have several TVs and one computer, they have one TV and several computers. The iPads seem to by lying around the house much like an old pair of shoes might.				

Group 2	Over 30				Coding Categories	
Question	10	Have you used Skype? If so, how often and on what devices?			A	0 to 5
					B	6 to 10
Category		Participant			C	11 to 15
<u>Code</u>		<u>ID</u>		<u>Responses</u>	D	16 to 20
		all		Yes	E	21 to 25
		2.6		I've been using Skype with my Chair because he's on sabbatical and that's how we communicate from France.	F	26 to 30
		2.4		Is it like FaceTime on your iPhone?	G	>30
		2.6		Yes. But we haven't been talking; we've just been chatting.		
		Mod		What devices do you use to Skype?		
		2.4		Computer		
		2.2		Computer		
		2.3		Computer		
		2.6		My iPad		
		2.1		My iPhone		
		Mod		Does your television offer Skype? Do you know?		
		2.2		When we were using Skype and YM (Yahoo Messaging) to communicate, I personally found YM preferable. It's essentially Skype done by Yahoo.		
		2.6		What did you like better about it?		
		2.2		We got cut off less; I just found the format easier, too: to follow along a written chat. It just seemed a lot better. It was the same as Skype as far as I could see.		
		Mod		Anyone have home theater systems?		
		2.6		Yes		
		2.3		Yes, we've got this where it really blasts the volume.		

				Coding	
Group 3	Under 30			A	Computer
				B	Notebook
Question	10	Have you used Skype? If so, how often and on what devices?		C	Smartphone
				D	TV
Category	Participant			E	Other
<u>Code</u>	<u>ID</u>	<u>Responses</u>			
	all	yes			
	3.3	Laptop			
	3.1	I use it on my phone too. The reason why I use Skype and not Facetime because a number of people I call overseas do not have iPhones, so I call numbers like landlines, and Skype enables me to pay just for that one call.			
	3.2	You can use Skype for more than just videochat. You can use that just as telephone or instant messenger.			
	Moderator	Do you know if your TV is Skype enabled?			
	3.2	Mine is. I never use that. It is just easier to use my phone or computer.			

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